



# STIC Search Report

## EIC 1700

STIC Database Tracking Number: 180871

**TO: Greg Delcotto**  
**Location: REM 9A39**  
**Art Unit : 1751**  
**March 6, 2006**

**Case Serial Number: 10/616775**

**From: Mei Huang**  
**Location: EIC 1700**  
**REMSSEN 4B28**  
**Phone: 571/272-3952**  
**Mei.huang@uspto.gov**

### Search Notes

Examiner Delcotto,

- 15 answers retrieved on the combination of structure+hypochlorite compounds and utility terms, page 6-41.
- 40 answers retrieved on the the structure+hypochlorite compounds w/o utility terms, page 41-112.

If you have any questions or if you would like to refine the search query, please feel free to contact me.

Thank you for using STIC services!

Mei Huang



Access DB# 180871

# SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: GRAC DELEOTTO Examiner #: 72268 Date: 2/27/06  
Art Unit: 1751 Phone Number: 202-775-1312 Serial Number: 101616775  
Mail Box and Bldg/Room Location: 9A39 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers; and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: STABILISED LIQUID COMPOSITIONS CONTAINING ACTIVE CHLORINE

Inventors (please provide full names): ANDREA ZANARDI, ITALO ACCARDI

Earliest Priority Filing Date: 7/30/02

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

- PLEASE SEARCH ALL CLAIMS  
\*SEE ATTACHED  
THANK YOU !!

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf. Ctr.  
FEB 26 REC'D  
Pat. & T.M. Office

## STAFF USE ONLY

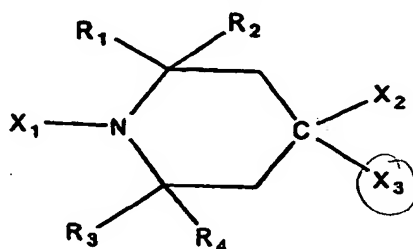
	Type of Search	Vendors and cost where applicable
Searcher: <u>MQH</u>	NA Sequence (#) _____	STN <input checked="" type="checkbox"/> _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>3/6/06</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

PLEASE AMEND THE CLAIMS AS FOLLOWS:

1. and 2. (Cancelled)
3. (Currently Amended) Method as claimed in claim ~~2~~ 18 wherein groups R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> represent methyl.
4. (Currently Amended) Method as claimed in claim ~~2~~ 18 wherein X<sub>1</sub> represents oxygen, X<sub>2</sub> is hydrogen, X<sub>3</sub> is OH and groups R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> represent methyl.
5. (Cancelled)
6. (Currently Amended) Method as claimed in ~~claims 1-5~~ Claim ~~1~~ 18 wherein said liquid compositions containing active chlorine are thickened with a soluble or water-dispersible polymer selected from homo- or co-polymers of acrylic acid or homo- or co-polymers of cross-linked acrylic acid.
- 7-8. (Cancelled)
9. (Currently Amended) Method as claimed in ~~claims 1 to 5~~ Claim ~~1~~ 18 wherein the amount active chlorine is between 0.5-10% by weight and the amount of stabilizer is between 0.005% and 3% by weight
- 10-16. (Cancelled)
17. (New) A liquid detergent composition for domestic and industrial cleaning containing an alkali or alkaline earth hypochlorite stabilized according to the method of Claim 18.

18. (New) Method for stabilizing the viscosity and/or the active chlorine content of a liquid composition containing alkali or alkaline earth hypochlorites comprising the addition to said composition of 0.001% to 5% of a compound belonging to the class of hindered amines of the general formula (I)

Formula I



wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>, which may be the same or different, represent methyl or ethyl; X<sub>1</sub> represents an oxygen atom, an -OH group or an OR<sub>5</sub> group, wherein R<sub>5</sub> represents linear or branched alkyl C<sub>1</sub>-C<sub>4</sub> or cyclohexyl; X<sub>2</sub> represents hydrogen and X<sub>3</sub> represents the groups -OH or -NHR<sub>5</sub>, wherein R<sub>5</sub> has the meaning described above; or X<sub>2</sub> and X<sub>3</sub>, taken together, represent an oxygen atom.





# STIC Search Results Feedback Form

**EIC17000**

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader  
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- I am an examiner in Workgroup:  Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

- Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

=> fil reg

FILE 'REGISTRY' ENTERED AT 14:58:59 ON 06 MAR 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 5 MAR 2006 HIGHEST RN 875875-45-9

DICTIONARY FILE UPDATES: 5 MAR 2006 HIGHEST RN 875875-45-9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

\*\*\*\*\*  
\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
\*\*\*\*\*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 14:59:10 ON 06 MAR 2006

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December, 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 6 Mar 2006 VOL 144 ISS 11

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

FILE LAST UPDATED: 5 Mar 2006 (20060305/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his ful

(FILE 'HOME' ENTERED AT 11:16:51 ON 06 MAR 2006)

FILE 'HCAPLUS' ENTERED AT 11:17:00 ON 06 MAR 2006

E US20040023837/PN

L1 1 SEA US2004023837/PN  
SEL RN

FILE 'REGISTRY' ENTERED AT 11:18:15 ON 06 MAR 2006

L2 12 SEA (13598-36-2/BI OR 138789-85-2/BI OR 14380-61-1/BI OR  
L3 1 SEA 7681-52-9/RN

FILE 'HCAPLUS' ENTERED AT 11:43:35 ON 06 MAR 2006

L4 10991 SEA L3

L5 391126 SEA SURFACT? OR DETERG? OR (SURFACE(W)ACTIVE# OR  
WETTING#) (A) (AGENT? OR ADDITIVE? OR COMPOUND? OR COMPD#  
OR CMPD# OR CPD#) OR EMULSIFIER? OR DISPERSANT?

L6 639057 SEA CLEAN? OR LAUND? OR RINS? OR DETERS? OR ABSTERS? OR  
EDULCORAT? OR SANIT? OR HYGIEN? OR DISINFECT? OR  
DECONTAMINA? OR STERILI? OR ABLUT? OR ELUTION# OR  
ELUTRIAT? OR SCRUB? OR SCOUR? OR DEGREAS? OR LIXIV?

L7 1603 SEA (ALK# OR ALKALI# OR ALKALINE#) (2A)HYPOCHLORITE#

FILE 'REGISTRY' ENTERED AT 11:59:42 ON 06 MAR 2006

L8 1 SEA "POTASSIUM HYPOCHLORITE"/CN

L9 1 SEA "LITHIUM HYPOCHLORITE (LICLO)"/CN

L10 1 SEA "MAGNESIUM HYPOCHLORITE"/CN

L11 1 SEA "CALCIUM HYPOCHLORITE"/CN

L12 1 SEA "STRONTIUM HYPOCHLORITE"/CN

FILE 'HCAPLUS' ENTERED AT 12:04:37 ON 06 MAR 2006

L13 10273 SEA SODIUM(W)HYPOCHLORITE#

L14 14713 SEA NAOCL OR NACLO

L15 744 SEA L8 OR POTASSIUM(W)HYPOCHLORITE# OR KOCL OR KCLO

L16 288 SEA L9 OR LITHIUM(W)HYPOCHLORITE# OR LIOCL OR LICLO

L17 2509 SEA L10 OR MAGNESIUM(W)HYPOCHLORITE# OR MG(W)CLO? OR  
MG(W)OCL?

L18 4703 SEA L11 OR CALCIUM(W)HYPOCHLORITE# OR CA(W)CLO? OR  
CA(W)OCL?

L19 190 SEA L12 OR STRONTIUM(W)HYPOCHLORITE# OR SR(W)CLO? OR  
SR(W)OCL?

FILE 'REGISTRY' ENTERED AT 13:35:15 ON 06 MAR 2006

L20 STR

L21 STR L20

L22 50 SEA SSS SAM L21

L23 STR L20

L24 38 SEA SSS SAM L23  
 L25 812 SEA SSS FUL L23  
 L26 STR L23  
 L27 37 SEA SUB=L25 SSS SAM L26  
 L28 806 SEA SUB=L25 SSS FUL L26  
 L29 1 SEA L2 AND L28  
 SAV L28 DEL775AS/A

FILE 'HCAPLUS' ENTERED AT 14:30:16 ON 06 MAR 2006

L30 2439 SEA L29  
 L31 3669 SEA L25 OR L28  
 L32 3669 SEA L30 OR L31  
 L33 53 SEA L32 AND (L4 OR L13 OR L14)  
 L34 8 SEA L33 AND (L5 OR L6)  
 L35 3 SEA L32 AND L15  
 L36 0 SEA L35 AND (L5 OR L6)  
 L37 1 SEA L32 AND L16  
 L38 0 SEA L37 AND (L5 OR L6)  
 L39 1 SEA L32 AND L17  
 L40 0 SEA L39 AND (L5 OR L6)  
 L41 5 SEA L32 AND L18  
 L42 1 SEA L41 AND (L5 OR L6)  
 L43 0 SEA L32 AND L19  
 L44 2 SEA L32 AND L7  
 L45 15 SEA L34 OR L35 OR L37 OR L39 OR L41 OR L42 OR L44  
 L46 40 SEA L33 NOT L45

=> d l45 que stat

L2 12 SEA FILE=REGISTRY (13598-36-2/BI OR 138789-85-2/BI OR  
 14380-61-1/BI OR 2226-96-2/BI OR 2403-88-5/BI OR  
 2782-57-2/BI OR 651353-92-3/BI OR 75760-37-1/BI OR  
 7681-52-9/BI OR 7790-28-5/BI OR 79-10-7/BI OR 87-90-1/BI)

L3 1 SEA FILE=REGISTRY 7681-52-9/RN

L4 10991 SEA FILE=HCAPLUS L3

L5 391126 SEA FILE=HCAPLUS SURFACT? OR DETERG? OR (SURFACE(W)ACTIVE  
 # OR WETTING#) (A) (AGENT? OR ADDITIVE? OR COMPOUND? OR  
 COMPD# OR CMPD# OR CPD#) OR EMULSIFIER? OR DISPERSANT?

L6 639057 SEA FILE=HCAPLUS CLEAN? OR LAUND? OR RINS? OR DETERS? OR  
 ABSTERS? OR EDULCORAT? OR SANIT? OR HYGIEN? OR DISINFECT?  
 OR DECONTAMINA? OR STERILI? OR ABLUT? OR ELUTION# OR  
 ELUTRIAT? OR SCRUB? OR SCOUR? OR DEGREAS? OR LIXIV?

L7 1603 SEA FILE=HCAPLUS (ALK# OR ALKALI# OR ALKALINE#) (2A)HYPOCH  
 LORITE#

L8 1 SEA FILE=REGISTRY "POTASSIUM HYPOCHLORITE"/CN

L9 1 SEA FILE=REGISTRY "LITHIUM HYPOCHLORITE (LICLO)"/CN

L10 1 SEA FILE=REGISTRY "MAGNESIUM HYPOCHLORITE"/CN

L11 1 SEA FILE=REGISTRY "CALCIUM HYPOCHLORITE"/CN

L13 10273 SEA FILE=HCAPLUS SODIUM(W)HYPOCHLORITE#

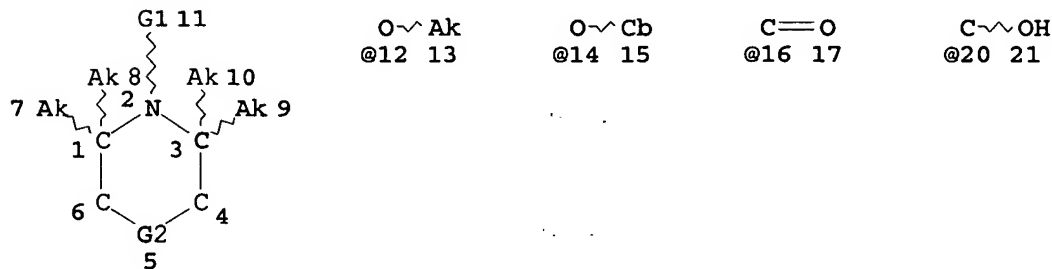
L14 14713 SEA FILE=HCAPLUS NAOCL OR NACLO

L15 744 SEA FILE=HCAPLUS L8 OR POTASSIUM(W)HYPOCHLORITE# OR KOCL  
 OR KCLO

L16 288 SEA FILE=HCAPLUS L9 OR LITHIUM(W)HYPOCHLORITE# OR LIOCL  
 OR LICLO

L17 2509 SEA FILE=HCAPLUS L10 OR MAGNESIUM(W)HYPOCHLORITE# OR

L18 4703 MG(W)CLO? OR MG(W)OCL? SEA FILE=HCAPLUS L11 OR CALCIUM(W)HYPOCHLORITE# OR  
 L23 STR CA(W)CLO? OR CA(W)OCL?



C~NH~G3 Ak @23 Cb @24  
 @18 19 22

VAR G1=O/OH/12/14

VAR G2=16/18/20

VAR G3=23/24

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 7

CONNECT IS E1 RC AT 8

CONNECT IS E1 RC AT 9

CONNECT IS E1 RC AT 10

CONNECT IS E1 RC AT 13

CONNECT IS E1 RC AT 23

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 7

GGCAT IS SAT AT 8

GGCAT IS SAT AT 9

GGCAT IS SAT AT 10

GGCAT IS SAT AT 13

GGCAT IS MCY SAT AT 15

GGCAT IS SAT AT 23

GGCAT IS MCY SAT AT 24

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M1-X4 C AT 7

ECOUNT IS M1-X4 C AT 8

ECOUNT IS M1-X4 C AT 9

ECOUNT IS M1-X4 C AT 10

ECOUNT IS M1-X4 C AT 13

ECOUNT IS E6 C AT 15

ECOUNT IS M1-X4 C AT 23

ECOUNT IS E6 C AT 24

GRAPH ATTRIBUTES:

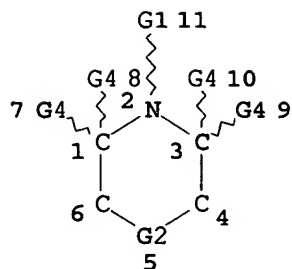
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 24

STEREO ATTRIBUTES: NONE

L25 812 SEA FILE=REGISTRY SSS FUL L23

L26 STR



O~ Ak  
@12 13

O~ Cb  
@14 15

C=O  
@16 17

C~OH  
@20 21

C~NH~G3  
@18 19 22

Ak @23 Cb @24

VAR G1=O/OH/12/14

VAR G2=16/18/20

VAR G3=23/24

VAR G4=ME/ET

NODE ATTRIBUTES:

CONNECT IS E1 RC AT 13

CONNECT IS E1 RC AT 23

DEFAULT MLEVEL IS ATOM

GGCAT IS SAT AT 13

GGCAT IS MCY SAT AT 15

GGCAT IS SAT AT 23

GGCAT IS MCY SAT AT 24

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M1-X4 C AT 13

ECOUNT IS E6 C AT 15

ECOUNT IS M1-X4 C AT 23

ECOUNT IS E6 C AT 24

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 24

STEREO ATTRIBUTES: NONE

L28 806 SEA FILE=REGISTRY SUB=L25 SSS FUL L26

L29 1 SEA FILE=REGISTRY L2 AND L28

L30 2439 SEA FILE=HCAPLUS L29

L31 3669 SEA FILE=HCAPLUS L25 OR L28

L32 3669 SEA FILE=HCAPLUS L30 OR L31

L33 53 SEA FILE=HCAPLUS L32 AND (L4 OR L13 OR L14)

L34 8 SEA FILE=HCAPLUS L33 AND (L5 OR L6)

L35 3 SEA FILE=HCAPLUS L32 AND L15

L37 1 SEA FILE=HCAPLUS L32 AND L16

L39 1 SEA FILE=HCAPLUS L32 AND L17

L41 5 SEA FILE=HCAPLUS L32 AND L18

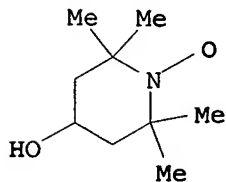
L42 1 SEA FILE=HCAPLUS L41 AND (L5 OR L6)

L44 2 SEA FILE=HCAPLUS L32 AND L7

L45 15 SEA FILE=HCAPLUS L34 OR L35 OR L37 OR L39 OR L41 OR L42  
OR L44

=> d l45 ibib abs hitstr hitind 1-15

L45 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2005:1324583 HCAPLUS  
TITLE: **Clean** and selective oxidation of  
alcohols catalyzed by ion-supported TEMPO in  
water  
AUTHOR(S): Qian, Weixing; Jin, Erlei; Bao, Weiliang; Zhang,  
Yongmin  
CORPORATE SOURCE: Department of Chemistry, Xi Xi Campus, Zhejiang  
University, Zhejiang, Hangzhou, 310028, Peop.  
Rep. China  
SOURCE: Tetrahedron (2006), 62(4), 556-562  
CODEN: TETRAB; ISSN: 0040-4020  
PUBLISHER: Elsevier B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Three different types of ion-supported TEMPO catalysts are  
synthesized and their catalytic activity in the chemoselective  
oxidn. of alcs. is investigated. These new catalysts show high  
catalytic activity in water and can be reused for the next run by  
extn. of products. Recycling expts. exhibit that ion-supported  
TEMPO can be reused up to five times without loss of catalytic  
activity. This system offers a very **clean**, convenient,  
environmentally benign method for the selective oxidn. of alcs. The  
catalysts prepd. for this study included 4-[4-(3-methyl-1-  
imidazolium)butoxy]-supported TEMPO tetrafluoroborate,  
4-[1-oxo-2-(3-methyl-1-imidazolium)ethoxy]-supported TEMPO  
tetrafluoroborate, and a dimer deriv. The most efficient oxidizing  
agent was an ionic liq.-supported hypervalent iodine reagent, i.e.,  
bis(acetato- $\kappa$ O)[4-[(3-methyl-1H-imidazolium-1-  
yl)methyl]phenyl]iodine(1+) tetrafluoroborate.  
IT 2226-96-2, 4-hydroxy-TEMPO  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ion-supported TEMPO as  
catalyst and water as solvent)  
RN 2226-96-2 HCAPLUS  
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



IT 7681-52-9, Sodium hypochlorite (  
NaOCl)  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst and water as solvent)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 25-16 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds).

Section cross-reference(s): 23, 28, 24

IT Alcohols

RL: RCT (Reactant); RACT (Reactant or reagent)

(aliph.; prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium-1-  
yl)methyl]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT Aldehydes

RL: SPN (Synthetic preparation); PREP (Preparation)

(aliph.; prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium-1-  
yl)methyl]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT Aldehydes

RL: SPN (Synthetic preparation); PREP (Preparation)

(arom.; prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium-1-  
yl)methyl]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT Alcohols

RL: RCT (Reactant); RACT (Reactant or reagent)

(benzyl; prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium-1-  
yl)methyl]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT Oxidation

(chemoselective; prepn. of aldehydes and ketones via  
**clean**, chemoselective oxidn. of alcs. using ionic  
liq.-supported TEMPO as catalyst and water as solvent)

IT Green chemistry

Ionic liquids

(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst and water as solvent)

IT Alcohols

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst and water as solvent)

IT Aldehydes

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst and water as solvent)



- IT Ketones  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst and water as solvent)
- IT Oxidizing agents  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium)methyl  
]phenyl]iodine tetrafluoroborate as oxidizing agent)
- IT Alcohols  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(secondary; prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
as catalyst, water as solvent and bis(acetato)[imidazolium-1-  
yl)methyl]phenyl]iodine tetrafluoroborate as oxidizing agent)
- IT 875757-05-4P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [(imidazolium)butoxy]-  
supported TEMPO (dimer) as catalyst and water as solvent)
- IT 288-32-4, 1H-Imidazole  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [(imidazolium)butoxy]-  
supported TEMPO (dimer) as catalyst and water as solvent)
- IT 875757-02-1P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [(imidazolium)butoxy]-  
supported TEMPO as catalyst and water as solvent)
- IT 616-47-7, 1-Methylimidazole  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [(imidazolium)butoxy]-  
supported TEMPO as catalyst and water as solvent)
- IT 875757-06-5P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [(imidazolium)butoxy]-  
supported TEMPO as catalyst and water as solvent)
- IT 875757-03-2P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [oxo(imidazolium)ethoxy]-  
supported TEMPO as catalyst and water as solvent)
- IT 79-04-9, Chloroacetyl chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of aldehydes and ketones via **clean**,  
chemoselective oxidn. of alcs. using [oxo(imidazolium)ethoxy]-  
supported TEMPO as catalyst and water as solvent)
- IT 851233-40-4P 875757-07-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);  
 RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using [oxo(imidazolium)ethoxy]-  
 supported TEMPO as catalyst and water as solvent)

IT 110-52-1, 1,4-Dibromobutane 2226-96-2, 4-hydroxy-TEMPO

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ion-supported TEMPO as  
 catalyst and water as solvent)

IT 184946-34-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);

RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ion-supported TEMPO as  
 catalyst and water as solvent)

IT 79-21-0, Peracetic acid 3240-34-4, Bis(acetato-κO)phenyl-

iodine 7553-56-2, Iodine 7681-52-9, Sodium

hypochlorite (NaOCl)

RL: RGT (Reagent); RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
 as catalyst and water as solvent)

IT 98-00-0, 2-Furanylmethanol 98-85-1, α-Methylbenzenemethanol

100-51-6, Benzyl alcohol 104-54-1, Cinnamyl alcohol 105-13-5,

4-Methoxybenzyl alcohol 111-27-3, 1-Hexyl alcohol 122-97-4,

Benzenepropanol 492-70-6, Dihydrobenzoin 556-48-9,

1,4-Dihydroxycyclohexane 589-91-3, 4-Methylcyclohexanol

626-93-7, 2-Hydroxyhexane 873-76-7, 4-Chlorobenzyl alcohol

3319-15-1, 4-Methoxy-α-methylbenzenemethanol 5391-88-8,

4-Bromo-α-methylbenzenemethanol 15852-63-8, Ethyl

4-(hydroxymethyl)benzoate

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
 as catalyst, water as solvent and bis(acetato)[imidazolium)methyl  
 ]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT 66-25-1P, Hexanal 98-01-1P, Furfural 98-86-2P, Acetophenone

99-90-1P 100-06-1P 100-52-7P, Benzaldehyde 104-53-0P,

3-Phenylpropanal 104-55-2P, Cinnamyl aldehyde 104-88-1P,

4-Chlorobenzaldehyde 119-53-9P, Benzoin 123-11-5P,

4-Methoxybenzaldehyde 589-92-4P, 4-Methylcyclohexanone

591-78-6P, Methyl butyl ketone 6287-86-1P, Ethyl

4-(formyl)benzoate 13482-22-9P, 4-Hydroxycyclohexanone

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
 as catalyst, water as solvent and bis(acetato)[imidazolium)methyl  
 ]phenyl]iodine tetrafluoroborate as oxidizing agent)

IT 848890-66-4

RL: RGT (Reagent); RACT (Reactant or reagent)

(prepn. of aldehydes and ketones via **clean**,  
 chemoselective oxidn. of alcs. using ionic liq.-supported TEMPO  
 as catalyst, water as solvent and ionic liq.-supported  
 hypervalent iodine as oxidizing agent)

REFERENCE COUNT: 48 THERE ARE 48 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L45 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:1031858 HCAPLUS

DOCUMENT NUMBER: 142:6014

TITLE: Bromine free TEMPO based catalyst system for  
oxidation of primary and secondary alcohols  
using NaOCl as an oxidant.INVENTOR(S): Prakash, Indra; Tanielyan, Setrak K.; Augustine,  
Robert L.; Furlong, Kenneth E.; Scherm, Robert  
C.; Jackson, Handley E.

PATENT ASSIGNEE(S): The Nutrasweet Company, USA

SOURCE: U.S., 10 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6825384	B1	20041130	US 2004-767805	20040129
PRIORITY APPLN. INFO.:				20040129

OTHER SOURCE(S): CASREACT 142:6014; MARPAT 142:6014

AB The present invention relates to a process of oxidn. of alcs. selectively to aldehydes or ketones with NaOCl using a 2,2,6,6-tetramethylpiperidinyloxy (TEMPO)-borate (Na2B4O7) catalyst system. It is shown that the oxidn. can be efficiently carried out without KBr additives under solvent free conditions. Aldehydes such as 3,3-dimethylbutyraldehyde can be produced efficiently using the present invention. Thus, 16.9 g 3,3-dimethyl-1-butanol (117.3 mmol) and 0.0765 g MeO-TEMPO (0.411 mmol) were charged in a jacketed glass reaction flask and treated with a soln. of NaOCl (0.380 g, 1.0 mmol) and 0.676 g NaHCO3 in 17 cc H2O under stirring. The stirred suspension was cooled to 0° and the emulsion was readjusted to pH = 8.4 using 50% AcOH. When the temp. of the reactants reached 0°, 77.5 g (126 mmol) 12.1% aq. NaOCl soln. was pumped in via a gastight syringe over 90 min wherein the pH of the bleach soln. was adjusted to 10 using 50% aq. AcOH. During the bleach addn., the pH was maintained at 8.3-8.4 levels using few drops of 50% aq. AcOH. The reaction mixt. was stirred for an addnl. 120 min at 0° while the reaction in this second stage was kept at pH 8.4 by addn. of 0.2-0.25 cc 50% aq. NaOH. The yield of 3,3-dimethylbutyraldehyde was 94.0% at 60 min and 96.0 % at 90 min reaction time.

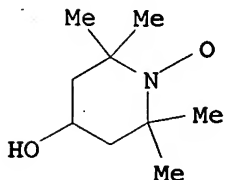
IT 2226-96-2, 4-Hydroxy-TEMPO 2896-70-0, 4-Oxo-TEMPO

RL: CAT (Catalyst use); USES (Uses)

(bromine free TEMPO-borate catalyst system for oxidn. of primary and secondary alcs. to aldehydes and ketones using sodium hypochlorite as oxidant)

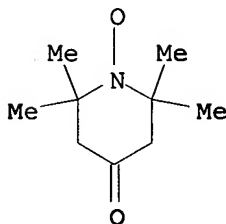
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7778-54-3, Calcium hypochlorite

7778-66-7, Potassium hypochlorite

RL: RGT (Reagent); RACT (Reactant or reagent)

(bromine free TEMPO-borate catalyst system for oxidn. of primary and secondary alcs. to aldehydes and ketones using sodium hypochlorite as oxidant)

RN 7778-54-3 HCAPLUS

CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● 1/2 Ca

RN 7778-66-7 HCAPLUS

CN Hypochlorous acid, potassium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● K

IC ICM C07C045-29  
ICS C07C045-30  
INCL 568402000; 568407000; 568471000; 568472000  
CC 21-2 (General Organic Chemistry)  
Section cross-reference(s): 23, 25  
IT 1330-43-4, Sodium borate 2226-96-2, 4-Hydroxy-TEMPO  
2564-83-2, TEMPO 2896-70-0, 4-Oxo-TEMPO — 3225-26-1  
3227-63-2, Zirconium diacetate 5153-24-2, Bis(acetato)oxozirconium  
6599-87-7 7758-02-3, Potassium bromide, uses 12192-25-5, Titanyl  
(TiO<sub>2</sub>+) 12258-53-6, Borate (B4O7<sup>2-</sup>) 12298-97-4, Zirconyl ion  
14066-20-7, Dihydrogen phosphate ion, uses 14259-85-9  
14311-52-5, Tungstate (WO<sub>4</sub><sup>2-</sup>) 14691-88-4, 4-Amino-TEMPO  
14691-89-5, 4-Acetamido-TEMPO 16984-32-0, Molybdenyl ion (MoO<sub>2</sub><sup>2+</sup>)  
20644-97-7, Vanadyl (VO<sub>2</sub><sup>+</sup>) 23325-30-6, Tungstyl ion(2+)  
34021-34-6, Chromyl ion(2+) 71335-68-7 85835-69-4, Vanadate  
(VO<sub>3</sub><sup>2-</sup>) 91993-31-6 95407-69-5, 4-Methoxy-TEMPO 123373-68-2  
RL: CAT (Catalyst use); USES (Uses)  
(bromine free TEMPO-borate catalyst system for oxidn. of primary  
and secondary alcs. to aldehydes and ketones using sodium  
hypochlorite as oxidant)  
IT 75-91-2, tert-Butyl hydroperoxide 79-21-0, Peracetic acid  
87-90-1, Trichloroisocyanuric acid 107-32-4, Performic acid  
127-09-3, Sodium acetate 144-55-8, Sodium bicarbonate, reactions  
298-14-6, Potassium bicarbonate 359-48-8, Trifluoroperacetic acid  
497-19-8, Sodium carbonate, reactions 584-08-7, Potassium  
carbonate 7558-79-4, Disodium hydrogen phosphate 7558-80-7,  
Sodium dihydrogen phosphate 7681-52-9, Sodium hypochlorite  
7722-84-1, Hydrogen peroxide, reactions 7758-11-4, Dipotassium  
hydrogen phosphate 7758-19-2, Sodium chlorite 7778-53-2,  
Potassium phosphate 7778-54-3, Calcium  
hypochlorite 7778-66-7, Potassium  
hypochlorite 7778-77-0, Potassium dihydrogen phosphate  
7796-16-9, Trichloroperacetic acid  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(bromine free TEMPO-borate catalyst system for oxidn. of primary  
and secondary alcs. to aldehydes and ketones using sodium  
hypochlorite as oxidant)  
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L45 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:648490 HCAPLUS  
DOCUMENT NUMBER: 141:190314  
TITLE: Bromine-free, borate/TEMPO-based catalyst system  
for oxidation of primary and secondary alcohols  
to aldehydes and ketones, using sodium  
hypochlorite (NaOCl) as an oxidant.  
INVENTOR(S): Tanielyan, Setrak K.; Augustine, Robert L.;  
Prakash, Indra; Furlong, Kenneth E.; Scherm,  
Robert C.; Jackson, Handley E.  
PATENT ASSIGNEE(S): The Nutrasweet Company, USA  
SOURCE: PCT Int. Appl., 28 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

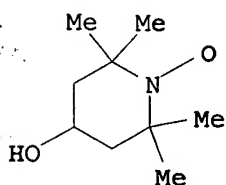
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004067484	A2	20040812	WO 2004-US2475	20040129
WO 2004067484	A3	20041118		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI				
EP 1590312	A2	20051102	EP 2004-706453	20040129
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
PRIORITY APPLN. INFO.:		US 2003-443749P	P	20030130
		WO 2004-US2475	W	20040129

OTHER SOURCE(S): CASREACT 141:190314; MARPAT 141:190314

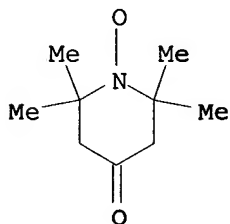
AB The invention relates to a process for oxidn. of alcs. selectively to aldehydes or ketones with NaOCl, using a TEMPO-borate catalyst system. The oxidn. can be efficiently carried out without KBr additives under solvent-free conditions. The method is highly efficient, economical, and does not require org. solvents, although several preferred solvents which can be used are disclosed. The method uses environmentally friendly oxidants, and does not require the use of bromine-based catalysts. Aldehydes such as 3,3-dimethylbutyraldehyde (I) can be produced efficiently. For instance, an aq. soln. of Na2B4O7 and NaHCO3 was added with stirring at 1000 rpm to a mixt. of 3,3-dimethyl-1-butanol and 4-methoxy-TEMPO catalyst. The suspension was cooled to 0° and adjusted to pH 8.4 with 50% AcOH. Then, a slight excess of aq. 12.1% NaOCl soln., pre-adjusted to pH 10, was added over 90 min, while maintaining the reaction pH at 8.3-8.4 with aq. AcOH. The mixt. was stirred for an addnl. 120 min at 0° with sampling, showing a 94% yield of I at 60 min, and 96% yield of I at 90 min. Yields of I by the invention method reached as high as 99%, and several other alcs. were oxidized to aldehydes in 90-100% yield. Simultaneous use of KBr and Na2B4O7 as cocatalysts gave no improvement in the yield of I. However, the absence of any cocatalyst reduced yields of I to 67%. In further contrast, a lit. method using KBr alone gave only 91% yield at 60 min, and a scaled-up, optimized procedure using KBr alone still gave only 89.7% yield of I at 60 min, and 91.5% at 90 min. Finally, oxidn. of 1-heptanol using over 2 equiv NaOCl yielded 83% heptanoic acid. A cascade mechanism for the oxidn. is

described.

IT 2226-96-2, 4-Hydroxy-TEMPO 2896-70-0, 4-Oxo-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst; borate/TEMPO catalyst for oxidn. of primary and  
 secondary alcs. to aldehydes and ketones using sodium  
 hypochlorite)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
 NAME)



RN 2896-70-0 HCAPLUS  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7778-54-3, Calcium hypochlorite  
 7778-66-7, Potassium hypochlorite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (oxidizing agent; borate/TEMPO catalyst for oxidn. of primary and  
 secondary alcs. to aldehydes and ketones using sodium  
 hypochlorite)  
 RN 7778-54-3 HCAPLUS  
 CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● 1/2 Ca

RN 7778-66-7 HCAPLUS  
 CN Hypochlorous acid, potassium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● K

IC ICM C07C  
CC 21-2 (General Organic Chemistry)  
Section cross-reference(s): 45  
IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 2564-83-2D,  
TEMPO, derivs. 2896-70-0, 4-Oxo-TEMPO 3225-26-1,  
4-Benzoyloxy-TEMPO 6599-87-7, 4-Acetoxy-TEMPO 14691-88-4,  
4-Amino-TEMPO 14691-89-5, 4-Acetamino-TEMPO 71335-68-7,  
4-(N,N-Dimethylamino)-TEMPO 71878-19-8, Chimassorb 944  
95407-69-5, 4-Methoxy-TEMPO 123373-68-2, 4-Ethoxy-TEMPO  
RL: CAT (Catalyst use); USES (Uses)  
(catalyst; borate/TEMPO catalyst for oxidn. of primary and  
secondary alcs. to aldehydes and ketones using sodium  
hypochlorite)  
IT 75-91-2, tert-Butyl hydroperoxide 79-21-0, Peracetic acid  
87-90-1, Trichloroisocyanuric acid 107-32-4, Performic acid  
359-48-8, Trifluoroperacetic acid 7681-52-9, Sodium hypochlorite  
7722-84-1, Hydrogen peroxide, reactions 7758-19-2, Sodium chlorite  
7778-54-3, Calcium hypochlorite  
7778-66-7, Potassium hypochlorite  
7796-16-9, Trichloroperacetic acid  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(oxidizing agent; borate/TEMPO catalyst for oxidn. of primary and  
secondary alcs. to aldehydes and ketones using sodium  
hypochlorite)

L45 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:159062 HCAPLUS  
DOCUMENT NUMBER: 140:183644  
TITLE: Stabilized liquid compositions containing active  
chlorine, thickener mixtures, stabilizing liquid  
compositions, and **detergents**  
INVENTOR(S): Zanardi, Andrea; Accardi, Italo  
PATENT ASSIGNEE(S): 3V Sigma S.P.A, Italy  
SOURCE: Eur. Pat. Appl., 11 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1391501	A2	20040225	EP 2003-14351	200306 26
EP 1391501	A3	20040331		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,				



PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU,  
SK  
CA 2433903 AA 20040130 CA 2003-2433903

PRIORITY APPLN. INFO.: IT 2002-MI1693 A 200306  
30  
200207  
30

OTHER SOURCE(S): MARPAT 140:183644

AB Liq. compns. contg. alkali or alk.-earth  
**hypochlorites**, and possibly other active Cl releasers such  
as trichlorocyanuric acid, dichlorocyanuric acid and its alkali  
salts, with special ref. to those used for bleaching and  
**sanitizing** fabrics and surfaces.

IT 7681-52-9, **Sodium hypochlorite**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(hindered amine stabilized liq. **cleaning** compns. contg.  
active chlorine for fabrics and hard surfaces)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

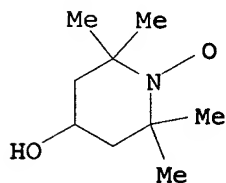
● Na

IT 2226-96-2  
RL: PRP (Properties); TEM (Technical or engineered material use);  
USES (Uses)

(stabilizer; hindered amine stabilized liq. **cleaning**  
compns. contg. active chlorine for fabrics and hard surfaces)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



IC ICM C11D007-32

ICS C11D003-395; C11D003-28

CC 46-6 (Surface Active Agents and Detergents)

ST thickened stabilized bleach hypochlorite; **disinfecting**  
**detergent** hypochlorite thickener polyacrylic acid  
crosslinked; hypochlorite stabilizer tetramethylhydroxypiperidine N  
oxide; hindered amine hypochlorite stabilizer; tetramethyl

hydroxypiperidine hypochlorite stabilizer

IT **Detergents**  
(bleaching; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT **Disinfectants**  
(**detergent**; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT **Detergents**  
(**disinfectant**; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT **Detergents**  
(liq.; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT 87-90-1D, Trichlorocyanuric acid, optionally salt 2782-57-2D, Dichlorocyanuric acid, optionally salt 7681-52-9, **Sodium hypochlorite** 7790-28-5, Sodium periodate 13598-36-2, Phosphonic acid 14380-61-1D, **Hypochlorite**, alkali or alk.-earth metal salt  
RL: TEM (Technical or engineered material use); USES (Uses)  
(hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT **2226-96-2** 2403-88-5  
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)  
(stabilizer; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

IT 79-10-7D, Acrylic acid, polymers 75760-37-1, Acusol 820 138789-85-2, Pemulen TR1 651353-92-3, Polygel DKP  
RL: TEM (Technical or engineered material use); USES (Uses)  
(thickener; hindered amine stabilized liq. **cleaning** compns. contg. active chlorine for fabrics and hard surfaces)

L45 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:100781 HCAPLUS

DOCUMENT NUMBER: 140:148120

TITLE: Hindered amine stabilized liquid compositions containing active chlorine

INVENTOR(S): Zanardi, Andrea; Accardi, Italo

PATENT ASSIGNEE(S): Italy

SOURCE: U.S. Pat. Appl. Publ., 7 pp.  
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

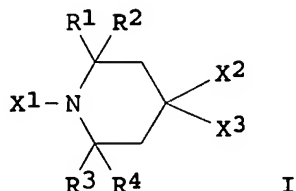
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004023837	A1	20040205	US 2003-616775	20030710
PRIORITY APPLN. INFO.:			IT 2002-MI16943	A 200207

30

OTHER SOURCE(S): MARPAT 140:148120  
GI



AB Liq. compns. with improved viscosity stability and/or active chlorine content, contains alkali or alk.-earth hypochlorites, and possibly other active chlorine releasers such as trichlorocyanuric acid, dichlorocyanuric acid and its alkali salts, with special ref. to those used for bleaching and sanitizing fabrics and surfaces. Method for stabilizing the viscosity and/or the active chlorine content of liq. compns. contg. alkali or alk.-earth hypochlorites, comprises the addn. to said compns. 0.001% to 5% by wt. of compds. belonging to the class of hindered amines having the general formula I, wherein R1, R2, R3 and R4, which may be the same or different, represent Me or ethyl; X1 represents H, Me, Et, an oxygen atom, an -OH group or an OR5 group, wherein R5 represents linear or branched alkyl C1-C4 or cyclohexyl; X2 represents hydrogen and X3 represents the groups -OH or -NHR5, wherein R5 has the meaning described above; or X2 and X3, taken together, represent an oxygen atom.

IT 7681-52-9, Sodium hypochlorite

RL: TEM (Technical or engineered material use); USES (Uses)  
(hindered amine stabilized liq. compns. contg. active chlorine)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

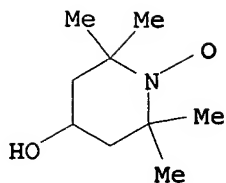
IT 2226-96-2

RL: PRP (Properties); TEM (Technical or engineered material use);  
USES (Uses)

(stabilizer; hindered amine stabilized liq. compns. contg. active chlorine)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C01B011-00  
ICS A62D009-00; C01B007-00; C09K003-00; A62D003-00; C11D001-00  
INCL 510499000; 252186360; 252186370  
CC 46-6 (Surface Active Agents and Detergents)  
ST thickened stabilized bleach hypochlorite; **disinfectant**  
**detergent** hypochlorite thickener polyacrylic acid  
crosslinked; hypochlorite stabilizer tetramethylhydroxypiperidine N  
oxide; hindered amine hypochlorite stabilizer; Tetramethyl  
hydroxypiperidine hypochlorite stabilizer  
IT **Detergents**  
(bleaching; hindered amine stabilized liq. compns. contg. active  
chlorine)  
IT **Disinfectants**  
(**detergent**; hindered amine stabilized liq. compns.  
contg. active chlorine)  
IT **Detergents**  
(**disinfectant**; hindered amine stabilized liq. compns.  
contg. active chlorine)  
IT **Detergents**  
(liq.; hindered amine stabilized liq. compns. contg. active  
chlorine)  
IT 87-90-1D, Trichlorocyanuric acid, optionally salt 2782-57-2D,  
Dichlorocyanuric acid, optionally salt 7681-52-9,  
**Sodium hypochlorite** 7790-28-5, Sodium periodate  
13598-36-2, Phosphonic acid 14380-61-1D, **Hypochlorite**,  
alkali or alk.-earth metal salt  
RL: TEM (Technical or engineered material use); USES (Uses)  
(hindered amine stabilized liq. compns. contg. active chlorine)  
IT 2226-96-2 2403-88-5  
RL: PRP (Properties); TEM (Technical or engineered material use);  
USES (Uses)  
(stabilizer; hindered amine stabilized liq. compns. contg. active  
chlorine)

L45 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:568648 HCAPLUS  
DOCUMENT NUMBER: 139:119061  
TITLE: Process for **cleaning** food processing  
filters using cyclic nitroxyl compounds and  
oxidizing agent  
INVENTOR(S): Jetten, Jan Matthijs; Van Der Lugt, Jan Pieter;  
Van Doren, Hendrik Arend; Van Wandelen, Mario  
Tarcisius Raymundus  
PATENT ASSIGNEE(S): Nederlandse Organisatie voor  
Toegepast-Natuurwetenschappelijk Onderzoek TNO,  
Neth.  
SOURCE: Eur. Pat. Appl., 8 pp.

DOCUMENT TYPE: CODEN: EPXXDW  
 LANGUAGE: Patent  
 English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1329498	A1	20030723	EP 2002-75219	20020118
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
CA 2474023	AA	20030724	CA 2003-2474023	20030120
WO 2003060052	A1	20030724	WO 2003-NL39	20030120
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003202831	A1	20030730	AU 2003-202831	20030120
EP 1465972	A1	20041013	EP 2003-701939	20030120
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005514517	T2	20050519	JP 2003-560139	20030120
US 2005178408	A1	20050818	US 2003-501584	20030120
PRIORITY APPLN. INFO.:				20020118
EP 2002-75219				A
WO 2003-NL39				W
				20030120

AB Filters used in the food and beverage industry can be cleaned by contacting the filters with a cyclic nitroxyl

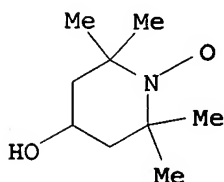
compd. and a reoxidizing agent or with a nitroxonium compd. in a free process. The nitroxyl halogen can be 2,2,6,6-tetramethylpiperidine-N-oxyl (TEMPO) or its 4-acetamido or 4-acetoxy deriv., and the nitroxonium compd. can be the corresponding oxidized ion obtained by enzymic or metal catalyzed oxidn. The reoxidizing agent may be a peracid, such as peracetic acid, persulfuric acid or permanganic acid, or a metal complex with a hydroperoxide. Thus, a beer fabric filter was **cleaned** using an aq. soln. (pH 10) contg. 1000 ppm of hypochlorite and 35 ppm of TEMPO.

IT 7681-52-9, Sodium Hypochlorite  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxidizing agents; process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-TEMPO  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C11D011-00  
 ICS C11D003-28; C11D007-32; C11D003-39; C11D007-26  
 CC 46-6 (Surface Active Agents and Detergents)  
 Section cross-reference(s): 17  
 ST **cleaning** food processing filter TEMPO  
 IT Filters  
 (fabric; process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)  
 IT Peroxy acids  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (oxidizing agents; process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)  
 IT Enzymes, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)

(oxidizing; process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)

IT Membrane filters  
Oxidizing agents  
(process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)

IT Coordination compounds  
RL: TEM (Technical or engineered material use); USES (Uses)  
(process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)

IT 79-21-0, Peracetic acid 7681-52-9, Sodium Hypochlorite 7722-84-1, Hydrogenperoxide, uses 7722-86-3, Peroxysulfuric acid 14380-61-1, Hypochlorite  
RL: TEM (Technical or engineered material use); USES (Uses)  
(oxidizing agents; process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)

IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, 2,2,6,6-Tetramethylpiperidine-N-oxyl 2564-83-2D, TEMPO, 4-acylamino derivs. 7647-15-6, Sodium bromide, uses 24959-67-9, Bromide, uses 104780-15-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(process for **cleaning** food processing filters using cyclic nitroxyl compds. and oxidizing agent)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L45 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:396479 HCAPLUS

DOCUMENT NUMBER: 135:5246

TITLE: Process for the selective oxidation of alcohols using easily separable nitroxyl radicals

INVENTOR(S): Sommerlade, Reinhard; Grutzmacher, Hansjorg; Boulmaaz, Souad

PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.

SOURCE: Eur. Pat. Appl., 15 pp.  
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
EP 1103537	A1	20010530	EP 2000-811058	20001110
EP 1103537	B1	20030514		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 240285	E	20030515	AT 2000-811058	20001110
JP 2001199923	A2	20010724	JP 2000-346074	200011

US 6441243	B1	20020827	US 2000-713277	14
				200011
				15
CA 2326304	AA	20010519	CA 2000-2326304	200011
				17
SK 284566	B6	20050602	SK 2000-1758	200011
				17
CN 1304921	A	20010725	CN 2000-132998	200011
				20
US 2002161265	A1	20021031	US 2002-164768	200206
				07
US 6660860	B2	20031209		
PRIORITY APPLN. INFO.:			CH 1999-2113	A
				199911
				19
			US 2000-713277	A3
				200011
				15

## OTHER SOURCE(S):

CASREACT 135:5246

AB The title process comprises oxidn. of alcs. to aldehydes and ketones by an alkali metal hypohalite and an insol. catalyst comprising O-derivatized 4-hydroxy-TEMPO (I). Thus, I was bound to Merrifield resin and the product used in the oxidn. of benzoin to benzil in 93% yield.

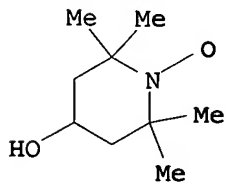
IT 2226-96-2DP, 4-Hydroxy-TEMPO, resin bound

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(process for the selective oxidn. of alcs. using easily separable nitroxyl radicals)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 2226-96-2, 4-Hydroxy-TEMPO

RL: RCT (Reactant); RACT (Reactant or reagent)

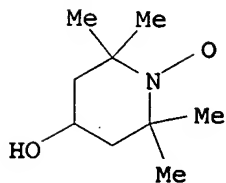
(process for the selective oxidn. of alcs. using easily separable nitroxyl radicals)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX



NAME)



IT 7778-66-7, Potassium hypochlorite  
 13840-33-0, Lithium hypochlorite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (process for the selective oxidn. of alcs. using easily separable  
 nitroxyl radicals)  
 RN 7778-66-7 HCAPLUS  
 CN Hypochlorous acid, potassium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● K

RN 13840-33-0 HCAPLUS  
 CN Hypochlorous acid, lithium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Li

IC ICM C07C045-30  
 ICS C07F009-6581; C07F009-59; C08G079-00  
 CC 21-2 (General Organic Chemistry)  
 IT 2226-96-2DP, 4-Hydroxy-TEMPO, resin bound 63384-97-4P  
 118315-68-7P  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (process for the selective oxidn. of alcs. using easily separable  
 nitroxyl radicals)  
 IT 57-55-6, 1,2-Propanediol, reactions 67-63-0, 2-Propanol, reactions  
 78-93-3, 2-Butanone, reactions 93-56-1, 1-Phenyl-1,2-ethanediol  
 108-77-0, Cyanuric chloride 111-29-5, 1,5-Pentanediol 119-53-9,  
 Benzoin 625-69-4, 2,4-Pentanediol 940-71-6 2226-96-2,  
 4-Hydroxy-TEMPO 26085-02-9, Poly(dichlorophosphazene)  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (process for the selective oxidn. of alcs. using easily separable  
 nitroxyl radicals)

IT 7681-52-9, Sodium hypochlorite 7778-66-7,  
Potassium hypochlorite 13824-95-8 13824-96-9,  
Sodium hypobromite 13824-97-0, Potassium hypobromite  
13840-33-0, Lithium hypochlorite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(process for the selective oxidn. of alcs. using easily separable  
nitroxyl radicals)  
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L45 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1998:208808 HCAPLUS

DOCUMENT NUMBER: 128:321381

TITLE: Preparation of amidocarboxylic acids,  
alkoxycarboxylic acids, and their salts as  
anionic surfactants for  
detergents

INVENTOR(S): Yokoi, Kenji; Nakagawa, Yuichi

PATENT ASSIGNEE(S): Lion Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10087554	A2	19980407	JP 1996-263668	199609 12
PRIORITY APPLN. INFO.: JP 1996-263668				199609 12

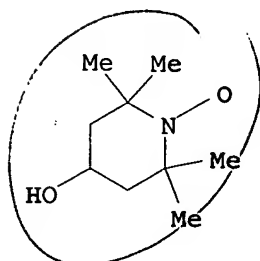
AB Amido- and/or alkoxy- or alkenyloxy-contg. carboxylic acids or their salts, useful as anionic surfactants for detergents (no data), are prepd. by oxidn. of amido- and/or alkoxy- or alkenyloxy-contg. alcs. with Cl-contg. oxidizing agents in the presence of nitroxide radicals and alkali metal halides or alk. earth metal halides. Me laurate was condensed with H<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>OH in the presence of NaOMe under 160 mmHg at 80-110° for 7 h and oligomerized with ethylene oxide in the presence of NaOMe at 70-120° for 7 h to give C<sub>11</sub>H<sub>23</sub>CONH(CH<sub>2</sub>)<sub>20</sub>(C<sub>2</sub>H<sub>4</sub>O)<sub>3</sub>.9H, which was treated with NaClO in the presence of 2,2,6,6-tetramethylpiperidine-1-oxyl and KBr aq. soln. and H<sub>2</sub>SO<sub>4</sub> at 15-35° and pH ≤ 9 for 4 h to give C<sub>11</sub>H<sub>23</sub>CONH(CH<sub>2</sub>)<sub>20</sub>(C<sub>2</sub>H<sub>4</sub>O)<sub>2</sub>.9CH<sub>2</sub>CO<sub>2</sub>H with 98% purity.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of carboxylic acids by oxidn. of alcs. with Cl-contg.  
oxidizing agents, nitroxide radicals, and metal halides)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C059-125

ICS C07C051-29; C07C233-18; C07C233-20; C07C235-06

CC 23-16 (Aliphatic Compounds)

Section cross-reference(s): 46

ST alc oxidn nitroxide radical metal halide; chlorine oxidizing agent  
oxidn alkenyloxy alc; alkenyloxy carboxylic acid prepn anionic  
**surfactant**

IT **Surfactants**

(anionic; prepn. of carboxylic acids as anionic  
**surfactants for detergents**)

IT 142-78-9, Lauric acid monoethanolamide 2226-96-2,  
4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl 2564-83-2,  
2,2,6,6-Tetramethylpiperidine-1-oxyl 7447-40-7, Potassium  
chloride, reactions 7647-15-6, Sodium bromide, reactions  
**7681-52-9, Sodium hypochlorite**

7758-02-3, Potassium bromide, reactions 9002-92-0,

Poly(oxyethylene) lauryl ether

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of carboxylic acids by oxidn. of alcs. with Cl-contg.  
oxidizing agents, nitroxide radicals, and metal halides)

L45 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:480467 HCAPLUS

DOCUMENT NUMBER: 127:95027

TITLE: Preparation of amide ether carboxylic acids as  
**surfactants** by oxidation of  
polyoxyethylene aminoethyl ethers using  
nitroxides

INVENTOR(S): Imoto, Hiroyuki; Fujio, Akira; Oshima, Yukiko

PATENT ASSIGNEE(S): Kao Corp., Japan

SOURCE: Jpn. Kokai Tokyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09151169	A2	19970610	JP 1995-313922	19951201
PRIORITY APPLN. INFO.:			JP 1995-313922	19951201

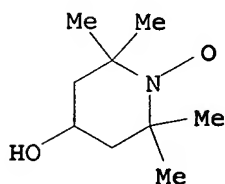
OTHER SOURCE(S): CASREACT 127:95027; MARPAT 127:95027

AB RCONHCH<sub>2</sub>CH<sub>2</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>-1CH<sub>2</sub>CO<sub>2</sub>M (I; R = C<sub>7</sub>-21 linear or branched alkyl, alkenyl; n = 0-20; M = H, cation), useful as **detergents** for shampoos, skin care products, and dishwashing compds., are prepd. by oxidn. of RCONHCH<sub>2</sub>CH<sub>2</sub>O(CH<sub>2</sub>CH<sub>2</sub>O)<sub>n</sub>H (II) with oxidizing agents in the presence of stable free radical nitroxides, optionally followed by neutralization. The reaction is preferably performed in the presence of Cl compds., Br compds., Cu(I) salts, or Fe(II) salts. NO<sub>x</sub>-generating compds. may be addnl. used in the oxidn. reaction. An aq. NaClO soln. was added dropwise to a mixt. of II (R = undecyl, n = 3) (prepn. given), 2,2,6,6-tetramethylpiperidine-1-oxyl, and CH<sub>2</sub>Cl<sub>2</sub> and the reaction mixt. was further stirred at 20° for 6 h to give I (R = undecyl, n = 3, M = H) at conversion 98% and selectivity 95%.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
 2896-70-0, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl  
 7681-52-9, **Sodium hypochlorite**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)

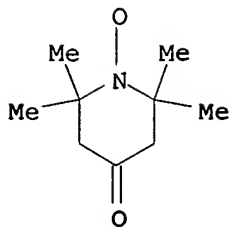
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C233-18

ICS C07C231-12; C07C233-20; C07B061-00; C11D001-06

CC 23-18 (Aliphatic Compounds)

Section cross-reference(s): 46, 62

ST amide ether carboxylate prepn **surfactant**; polyoxyethylene  
amidoethyl ether oxidn nitroxide; piperidineoxyl polyoxyethylene  
amidoethyl ether oxidn

IT Quaternary ammonium compounds, uses

RL: CAT (Catalyst use); USES (Uses)

(bromides, catalysts; prepn. of amide ether carboxylic acids as  
**surfactants** by oxidn. of polyoxyethylene aminoethyl  
ethers using nitroxides)

IT Alkali metal bromides

Alkali metal chlorides

RL: CAT (Catalyst use); USES (Uses)

(catalysts; prepn. of amide ether carboxylic acids as  
**surfactants** by oxidn. of polyoxyethylene aminoethyl  
ethers using nitroxides)

IT Quaternary ammonium compounds, uses

RL: CAT (Catalyst use); USES (Uses)

(chlorides, catalysts; prepn. of amide ether carboxylic acids as  
**surfactants** by oxidn. of polyoxyethylene aminoethyl  
ethers using nitroxides)

IT Polyoxyalkylenes, preparation

RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic  
preparation); PREP (Preparation); RACT (Reactant or reagent)

(coco amidoethyl ethers; prepn. of amide ether carboxylic acids  
as **surfactants** by oxidn. of polyoxyethylene aminoethyl  
ethers using nitroxides)

IT Fatty acids, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(coco, Me esters; in prepn. of amide ether carboxylic acids as  
**surfactants** by oxidn. of polyoxyethylene aminoethyl  
ethers using nitroxides)

- IT Fatty acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (coco, esters, Me esters; in prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT Oxidizing agents  
**Surfactants**  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 7632-00-0, Sodium nitrite 7697-37-2, Nitric acid, reactions  
 14293-70-0, Potassium nitrosodisulfonate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (NOx-generating agent; prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 3251-23-8, Copper(II) nitrate 5137-55-3, Tricaprylmethylammonium chloride 7647-14-5, Sodium chloride, uses 7647-15-6, Sodium bromide, uses 7787-70-4, Copper(I) bromide  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalyst; prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 111-82-0, Methyl laurate 141-43-5, Monoethanolamine, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 7758-89-6, Copper(I) chloride 7758-94-3, Iron(II) chloride  
 35675-80-0, Tricaprylmethylammonium bromide  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 25322-68-3DP, coco amidoethyl ethers 26635-75-6P  
 RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 90453-60-4DP, coco amidoethyl ether 90453-60-4P 100424-86-0P  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)
- IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl 2896-70-0,  
 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl 7681-52-9,  
**Sodium hypochlorite** 7782-50-5, Chlorine,  
 reactions 11104-93-1, Nitrogen oxide, reactions 64486-65-3,  
 2,2,6,6-Tetramethylpiperidine-1-oxyl-4-sulfate  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of amide ether carboxylic acids as **surfactants** by oxidn. of polyoxyethylene aminoethyl ethers using nitroxides)

L45 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:185134 HCAPLUS

DOCUMENT NUMBER: 126:252694

TITLE: Preparation of alkoxyalkanoic acids for anionic **surfactants** and emulsifying agents

INVENTOR(S): Fried, Herbert E.; Singleton, David M.  
 PATENT ASSIGNEE(S): Shell Oil Co., USA  
 SOURCE: U.S., 6 pp.  
 CODEN: USXXAM  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5608107	A	19970304	US 1995-455369	19950531
PRIORITY APPLN. INFO.:			US 1995-455369	19950531

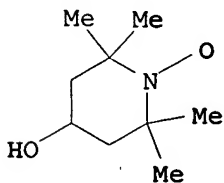
AB A process for prepg. an alkoxyalkanoic acid involves reacting the corresponding alkoxyalkanol with a resin-supported stable free radical nitroxide in the presence of a chlorine-contg. oxidant and a solvent at 0-35° and thereafter sepg. out the alkoxyalkanoic acid. Neodol 23-3T (ethoxylated C12-13 alcs., 31.5 g) and 3 g reaction product of 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy and chloromethylated styrene-divinylbenzene copolymer in 100 mL CH<sub>2</sub>Cl<sub>2</sub> were added with 6 g Na bicarbonate and 282 g 5.25% aq. Na hypochlorite and kept at 20° overnight to give a corresponding carboxylic acid with 98% conversion.

IT 2226-96-2D, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy, reaction product with chloromethylated styrene-divinylbenzene copolymer

RL: CAT (Catalyst use); USES (Uses)  
 (prepn. of alkoxyalkanoic acids for anionic surfactants and emulsifying agents)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of alkoxyalkanoic acids for anionic surfactants and emulsifying agents)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

## ● Na

IC ICM C07C051-235  
INCL 562538000  
CC 46-3 (Surface Active Agents and Detergents)  
Section cross-reference(s): 23, 38  
ST alkoxyalkanoic acid anionic **surfactant emulsifier**  
; ethoxylated alc oxidn alkoxy-carboxylic acid  
IT Alcohols, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(C12-13, ethoxylated, oxidn. of; prepn. of alkoxyalkanoic acids  
for anionic **surfactants** and emulsifying agents)  
IT Carboxylic acids, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(alkoxy-; prepn. of alkoxyalkanoic acids for anionic  
**surfactants** and emulsifying agents)  
IT **Surfactants**  
(anionic; prepn. of alkoxyalkanoic acids for anionic  
**surfactants** and emulsifying agents)  
IT Oxidizing agents  
(chloro; prepn. of alkoxyalkanoic acids for anionic  
**surfactants** and emulsifying agents)  
IT Emulsifying agents  
(prepn. of alkoxyalkanoic acids for anionic **surfactants**  
and emulsifying agents)  
IT Oxidation catalysts  
(resin-supported free radical nitroxide; prepn. of alkoxyalkanoic  
acids for anionic **surfactants** and emulsifying agents)  
IT Nitroxides  
RL: CAT (Catalyst use); USES (Uses)  
(resin-supported; prepn. of alkoxyalkanoic acids for anionic  
**surfactants** and emulsifying agents)  
IT 2226-96-2D, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxy,  
reaction product with chloromethylated styrene-divinylbenzene  
copolymer 9003-70-7D, Divinylbenzene-styrene copolymer,  
chloromethylated, reaction product with nitroxide  
RL: CAT (Catalyst use); USES (Uses)  
(prepn. of alkoxyalkanoic acids for anionic **surfactants**  
and emulsifying agents)  
IT 25322-68-3DP, C12-13 alkyl ether, carboxylic acid  
RL: IMF (Industrial manufacture); TEM (Technical or engineered  
material use); PREP (Preparation); USES (Uses)  
(prepn. of alkoxyalkanoic acids for anionic **surfactants**  
and emulsifying agents)  
IT 7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of alkoxyalkanoic acids for anionic **surfactants**  
and emulsifying agents)

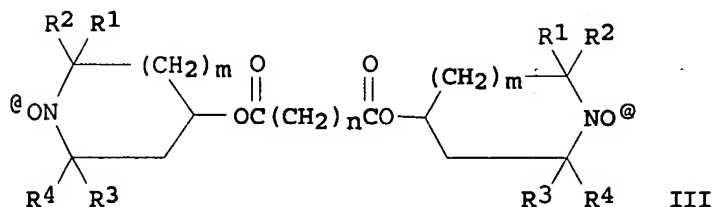
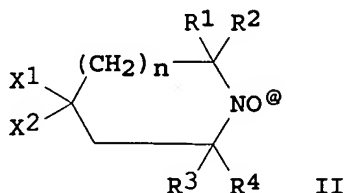


L45 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1996:281651 HCAPLUS  
 DOCUMENT NUMBER: 124:317006  
 TITLE: Preparation of 2-cyclopropyl-4-(4-fluorophenyl)quinoline-3-carbaldehyde by oxidation of 2-cyclopropyl-4-(4-fluorophenyl)-3-hydroxymethylquinoline with hypochlorite  
 INVENTOR(S): Nishizawa, Susumu; Matsumoto, Hiroo; Obara, Yoshio  
 PATENT ASSIGNEE(S): Sumika Fuainkemu KK, Japan; Sumitomo Chemical Co., Ltd.; Nissan Chemical Industries, Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08027114	A2	19960130	JP 1994-187729	19940718
JP 3641808	B2	20050427	JP 1994-187729	19940718

PRIORITY APPLN. INFO.:

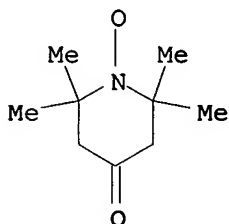
OTHER SOURCE(S): CASREACT 124:317006; MARPAT 124:317006  
 GI



AB The alc. 2-cyclopropyl-4-(4-fluorophenyl)-3-hydroxymethylquinoline (I) is oxidized with NaOCl in the presence of nitroxyl radical

deriv. (II or III; X1, X2 = H, halo, OH, C1-5 alkyl, C5-6 cycloalkyl, C1-5 alkoxy, C1-10 acyloxy, CONH2, carbamoyl-C1-4 alkyl, CO2H, C1-5 alkoxy carbonyl; or X1X2 = O; R1 - R4 = C1-5 alkyl; m = 0,1; n = 0, 1-12) to give 2-cyclopropyl-4-(4-fluorophenyl)quinoline-3-carbaldehyde (IV), which is useful as intermediate for cholesterol lowering HMG-CoA enzyme inhibitor. Thus, 19.7 g I was dissolved in 200 mL CH2Cl2, treated with a soln. of 0.8 g KBr in 100 mL H2O, cooled to 1° with stirring, and treated with 104 mg 2,2,6,6-tetramethylpiperidine-1-oxyl and then dropwise with 120 mL 0.7 mol NaOCl, and the resulting mixt. was stirred at 0-5° for 5 h and adjusted to pH 8.6 by adding dropwise satd. NaHCO3 to give, after workup and crystn. from iso-Pr ether, 96% IV of 99.3% purity.

IT 2896-70-0, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. of cyclopropyl(fluorophenyl)quinolinecarbaldehyde by  
 oxidn. of cyclopropyl(fluorophenyl)hydroxymethylquinoline with  
 hypochlorite)  
 RN 2896-70-0 HCAPLUS  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7778-54-3, Calcium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of cyclopropyl(fluorophenyl)quinolinecarbaldehyde by  
 oxidn. of cyclopropyl(fluorophenyl)hydroxymethylquinoline with  
 hypochlorite)  
 RN 7778-54-3 HCAPLUS  
 CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

●1/2 Ca

IC ICM C07D215-14  
 CC 27-17 (Heterocyclic Compounds (One Hetero Atom))  
 IT 2516-88-3 2516-92-9 2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl 2896-70-0, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl 3225-26-1 6599-87-7, 4-Acetoxy-2,2,6,6-tetramethylpiperidine-1-oxyl 7647-15-6, Sodium bromide, uses 7758-02-3, Potassium bromide, uses 14691-89-5, 4-Acetamido-2,2,6,6-tetramethylpiperidine-1-oxyl 95407-69-5, 4-Methoxy-2,2,6,6-

tetramethylpiperidine-1-oxyl 176234-43-8, 4-Hydroxyl-2,2,6,6-tetramethylpiperidine-1-oxyl  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. of cyclopropyl(fluorophenyl)quinolinecarbaldehyde by oxidn. of cyclopropyl(fluorophenyl)hydroxymethylquinoline with hypochlorite)

IT 7681-52-9, Sodium hypochlorite 7778-54-3, Calcium

hypochlorite 121660-11-5

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of cyclopropyl(fluorophenyl)quinolinecarbaldehyde by oxidn. of cyclopropyl(fluorophenyl)hydroxymethylquinoline with hypochlorite)

L45 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1993:409389 HCAPLUS

DOCUMENT NUMBER: 119:9389

TITLE: Preparation of polyoxyalkylene or alkyl polyglucoside carboxylates

INVENTOR(S): Casciani, Robert V.; Likibi, Parfait J. M.; McGraw, Gregory L.

PATENT ASSIGNEE(S): Sandoz-Patent-G.m.b.H., Germany

SOURCE: Ger. Offen., 19 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
DE 4209869	A1	19921001	DE 1992-4209869	199203 26
US 5334756	A	19940802	US 1991-675220	199103 26
FR 2674528	A1	19921002	FR 1992-3626	199203 24
FR 2674528	B1	19950106		
GB 2257149	A1	19930106	GB 1992-6359	199203 24
GB 2257149	B2	19950524		
CH 683525	A	19940331	CH 1992-930	199203 24
BE 1006771	A4	19941206	BE 1992-280	199203 24
GB 2281074	A1	19950222	GB 1994-22659	199203 24
GB 2281074	B2	19950524		
JP 05194334	A2	19930803	JP 1992-66932	

NL 9200556	A	19921016	NL 1992-556	199203 25
US 5504246	A	19960402	US 1994-268743	199203 26
US 5670685	A	19970923	US 1995-471809	199406 30
US 5668261	A	19970916	US 1996-612146	199506 06
PRIORITY APPLN. INFO.:			US 1991-675220	199603 07
			GB 1992-6359	A 199103 26
			US 1994-268743	A3 199203 24
				A1 199406 30

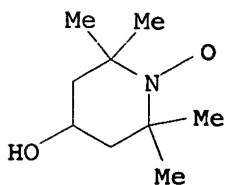
AB In the title process, which is simple, selective, and com. attractive, 1 mol primary OH group-contg. polyoxyalkylene-siloxane, polyoxyalkylene amine or amide, polyoxyalkylene alkyl ether, or alkyl polyglucoside is treated with  $\geq 1$  mol halogen-contg. oxidant in the presence of a weak base and a nitroxyl catalyst. Adding 385 mL 1.91M NaOCl (pH 8.6) over 3 h to a mixt. of 91.35 g HO(CH<sub>2</sub>CH<sub>2</sub>O)<sub>27</sub>(CH<sub>2</sub>)<sub>3</sub>[Si(Me)<sub>2</sub>O]<sub>5</sub>Si(Me)<sub>2</sub>(CH<sub>2</sub>)<sub>3</sub>(OCH<sub>2</sub>CH<sub>2</sub>)<sub>27</sub>OH, 12.5 g NaHCO<sub>3</sub>, and 1.14 g 2,2,6,6-tetramethyl-1-piperidinoxyl and stirring for 1 h gave a block polyoxyalkylene-siloxane bearing 2 terminal CO<sub>2</sub>Na groups.

IT 2226-96-2D, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinoxyl, reaction products with poly[(chloromethyl)styrene]

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oxidn. of polyalkylene glycols and polyglucosides)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7778-54-3, Calcium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. by, of polyalkylene glycols and polyglucosides)  
RN 7778-54-3 HCAPLUS  
CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

●1/2 Ca

IC ICM C08G085-00  
ICS C08G077-38; C08G077-46; C08G065-32; C08G065-22; C08B037-00;  
C07H015-04  
ICA C08F002-30; C08F002-26; B01F017-42; B01F017-52; B01F017-54;  
D06M015-53; C11D003-37; C11D003-20; C11D003-22  
CC 35-8 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 27, 44, 67  
IT 2226-96-2D, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinoxyl,  
reaction products with poly[(chloromethyl)styrene] 2564-83-2,  
2,2,6,6-Tetramethyl-1-piperidinoxyl 9080-67-5D,  
Poly[(chloromethyl)styrene], reaction products with  
hydroxytetramethylpiperidinoxyl  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oxidn. of polyalkylene glycols and  
polyglucosides)  
IT 7681-52-9, Sodium hypochlorite 7778-54-3, Calcium  
hypochlorite 7782-50-5, Chlorine, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. by, of polyalkylene glycols and polyglucosides)

L45 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1992:553252 HCAPLUS  
DOCUMENT NUMBER: 117:153252  
TITLE: Preparation of alkoxyalkanoic acids by oxidation  
of alkoxyalkanols  
INVENTOR(S): Fried, Herbert Elliott  
PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B.  
V., Neth.  
SOURCE: Eur. Pat. Appl., 8 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 488467	A2	19920603	EP 1991-203068	199111 22
EP 488467	A3	19921028		
EP 488467	B1	19960131		

R: BE, CH, DE, ES, FR, GB, IT, LI, NL

US 5175360	A	19921229	US 1990-618205	199011 26
KR 218651	B1	19990901	KR 1991-20819	199111 21
CA 2055804	AA	19920527	CA 1991-2055804	199111 22
CA 2055804	C	20020604		
AU 9188061	A1	19920528	AU 1991-88061	199111 22
AU 643339	B2	19931111		
CN 1061773	A	19920610	CN 1991-110929	199111 22
CN 1033226	B	19961106		
BR 9105080	A	19920623	BR 1991-5080	199111 22
JP 04283537	A2	19921008	JP 1991-332937	199111 22
JP 3101037	B2	20001023		
ES 2083516	T3	19960416	ES 1991-203068	199111 22
PRIORITY APPLN. INFO.:			US 1990-618205	A 199011 26

## OTHER SOURCE(S): MARPAT 117:153252

AB Acids  $RO(CH_2CHR_1O)_nCH_2CO_2H$  ( $R = C1-22$  alkyl;  $R_1 = H, Me$ ;  $n = 1-12$ ), useful in **detergent** compns., are prepd. by oxidizing the corresponding alkoxyalkanols in the presence of solubilized stable free radical nitroxide such as 2,2,6,6-tetramethyl-1-piperidinyloxy (I). A mixt. of 31 g Neodol 23-3T (ethoxylated C12-13 alcs.), 0.5 g I, and 125 mL  $Cl_2CH_2$  was treated with 282 g 5.25%  $NaOCl$  soln. (contg. 2.6 g 25%  $H_2SO_4$  to give pH 8.6) to give >99% conversion of OH end groups with 90% selectivity to  $CO_2H$  groups.

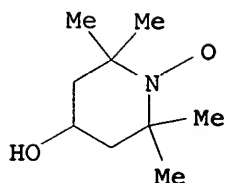
IT 2226-96-2 2896-70-0

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidn. of ethoxylated alcs. to carboxylic acids)

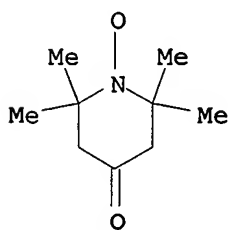
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IC ICM C07C059-125

ICS C11D001-06; C07C051-29

CC 46-3 (Surface Active Agents and Detergents)

Section cross-reference(s): 23

IT **Surfactants**

(alkoxyalkanoic acids, prepn. of, from ethoxylated alcs., catalysts for)

IT **2226-96-2** 2564-83-2 **2896-70-0** 64486-65-3

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for oxidn. of ethoxylated alcs. to carboxylic acids)

L45 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1992:107086 HCAPLUS

DOCUMENT NUMBER: 116:107086

TITLE: Poly(vinyl alcohol)-derived reactive polymers and their manufacture

INVENTOR(S): Endo, Takeshi

PATENT ASSIGNEE(S): Kuraray Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 03263407	A2	19911122	JP 1990-63378	19900313
JP 2865780	B2	19990308		

PRIORITY APPLN. INFO.:

JP 1990-63378

199003

13

AB Title polymers contain 45-85 mol% CH<sub>2</sub>CO (I), 1-54.99 mol% CH<sub>2</sub>CHOH (II), and 0.01-54 mol% CH<sub>2</sub>CH(O<sub>2</sub>CR<sub>1</sub>) (III; R<sub>1</sub> = H, C<sub>1</sub>-10 alkyl), show intrinsic viscosity ≥0.25 dL/g in Me<sub>2</sub>SO at 30°, and are manufd. by oxidizing poly(vinyl alc.) of ≥20 mol% sapon. degree with an α,α'-tetraalkyloxonium salt in the presence of a perchlorate or carbonate salt. Thus, a mixt. of poly(vinyl alc.) with av. d.p. 1750 and sapon. degree 88.5 mol% 10, N-methyl-2-pyrrolidone 490, Mg(ClO<sub>4</sub>)<sub>2</sub> 68, and 4-methoxy-2,2,6,8-tetramethyl-1-oxopiperidinium chloride 49 parts was stirred at room temp. under N in the dark to give a polymer contg. I 61, II 27.5, and III (R<sub>1</sub> = Me) 11.5 mol%.

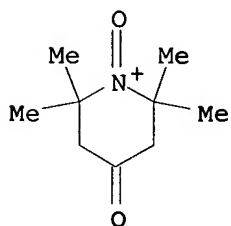
IT 139425-71-1

RL: USES (Uses)

(oxidn. with, of poly(vinyl alc.))

RN 139425-71-1 HCAPLUS

CN Piperidinium, 2,2,6,6-tetramethyl-1,4-dioxo-, chloride (9CI) (CA INDEX NAME)

● Cl<sup>-</sup>

IC ICM C08F008-06

ICS C08F016-06

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 90246-27-8 95407-70-8 139425-71-1

RL: USES (Uses)

(oxidn. with, of poly(vinyl alc.))

L45 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1986:211040 HCAPLUS

DOCUMENT NUMBER: 104:211040

TITLE: Corrosion inhibitors for chemical deicers

INVENTOR(S): Romanov, Andrej; Ambrovic, Peter; Manasek, Zdenek; Pastusakova, Vlasta

PATENT ASSIGNEE(S): Czech.

SOURCE: Czech., 5 pp.

CODEN: CZXXA9

DOCUMENT TYPE: Patent

LANGUAGE: Czech



FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CS 221199	B	19830429	CS 1981-3536	19810514
PRIORITY APPLN. INFO.:			CS 1981-3536	19810514

AB The corrosion by org. or inorg. deicing agents on roads and bridges in the winter season is decreased by adding: (a) NR1R2R3 (where R1 = H, OH, C1-10 alkyl or hydroxyalkyl; R2, R3 = H, alkyl, hydroxyalkyl, arylhydroxyalkyl, aminoalkyl, alkylaminoalkyl, dialkylaminoalkyl, or R2 + R3 = C1-14 pyridyl or piperazinyl 0.005-1.5%; and (b) oxidizing agents (esp. hypochlorites, chlorates, and perchlorates of alkali metals and/or alk. earth metals and/or alkali metal peroxides, H2O2, alkali metal peroxysulfates, or NH4 peroxysulfate) 0.1-15%. Thus, degreased cylinders of malleable cast iron (surface area 50 cm2) were immersed 24 h in a 250-mL aq. 12% urea soln. contg. 0.5 NaClO3 and 0.2% diethanolamine. No corrosion occurred, but it did (75 g/m2 wt. loss) in the absence of the inhibitor.

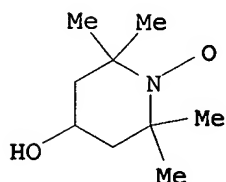
IT 2226-96-2 7778-54-3

RL: USES (Uses)

(corrosion inhibitors contg., for road deicer mixts.)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7778-54-3 HCAPLUS

CN Hypochlorous acid, calcium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

●1/2 Ca

IC C23F011-00

CC 55-10 (Ferrous Metals and Alloys)

Section cross-reference(s): 58

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

IT 100-37-8 102-71-6, uses and miscellaneous 108-01-0 110-85-0,  
uses and miscellaneous 110-89-4, uses and miscellaneous 111-40-0  
111-42-2, uses and miscellaneous 124-09-4, uses and miscellaneous  
141-43-5, uses and miscellaneous 2226-96-2 2403-88-5  
5470-11-1 7758-19-2 7778-54-3 36768-62-4

RL: USES (Uses)

(corrosion inhibitors contg., for road deicer mixts.)

=> d 146 ibib abs hitstr hitind 1-40

L46 ANSWER 1 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:58386 HCAPLUS

DOCUMENT NUMBER: 144:156676

TITLE: Polyethylene glycol carboxylic acid and its  
preparation and its application to conjugate  
with drugs

INVENTOR(S): Ma, Guanghui; Su, Zhiguo; Li, Xingqi

PATENT ASSIGNEE(S): Institute of Process Engineering, Chinese  
Academy of Sciences, Peop. Rep. China

SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 10  
pp.

CODEN: CNXXEV

DOCUMENT TYPE: Patent

LANGUAGE: Chinese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
-----				
CN 1618837	A	20050525	CN 2003-10113367	200311 17
				200311 17

PRIORITY APPLN. INFO.: CN 2003-10113367

AB The method comprises oxidating polyethylene glycol in water soln. in the presence of nitroxide free radical with adding 2.5-4 times hypohalate of -OH as oxidant and 5-30% bromide of -OH at -5-50°C and 7-14 pH. The thus prepd. polyethylene glycol carboxylic acids have the general formula of  $RO(CH_2CH_2O)_nCH_2COOH$ , wherein R is  $-CH_2COOH$ ,  $-CH_3$ ,  $-C_2H_5$ ,  $-C_3H_7$ , etc.,  $n=5-1000$ . Nitroxide free radical is from 2,2,6,6-tetramethyl-piperidinyloxy, 4-methoxy-2,2,6,6-trimethyl-piperidinyloxy, or their mixt. Hypohalate is IA or IIA metal salt of hypochlorite or hypobromite, e.g. sodium hypochlorite, sodium hypobromite. Bromide is IA or IIA metal salt such as sodium bromide, potassium bromide, calcium bromide. Title product may be used for finishing biol. macromol. and pharmaceutical micromol. with nucleophilic group, such as protein, polypeptide, anticancer drugs, antibiotic, anti-inflammatory drugs.

IT 2226-96-2 2896-70-0

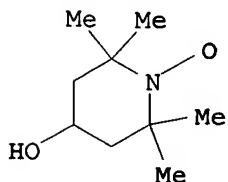
RL: CAT (Catalyst use); USES (Uses)

(pharmaceutical compns. contg. polyethylene glycol carboxylic

acids and their conjugates with drugs)

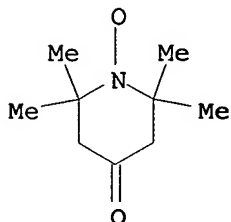
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RGT (Reagent); RACT (Reactant or reagent)

(pharmaceutical compns. contg. polyethylene glycol carboxylic acids and their conjugates with drugs)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08G065-48

ICS C07K017-08

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 21, 35

IT 2226-96-2 2564-83-2, 2,2,6,6-Tetramethyl-piperidinyloxy

2896-70-0 13408-29-2, Nitroxide radical 95407-69-5

RL: CAT (Catalyst use); USES (Uses)

(pharmaceutical compns. contg. polyethylene glycol carboxylic acids and their conjugates with drugs)

IT 538-75-0, DCC 6066-82-6, N-Hydroxysuccinimide 7647-15-6, Sodium bromide, reactions 7681-52-9, Sodium

hypochlorite 7758-02-3, Potassium bromide, reactions

7789-41-5, Calcium bromide 13824-96-9, Sodium hypobromite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (pharmaceutical compns. contg. polyethylene glycol carboxylic  
 acids and their conjugates with drugs)

L46 ANSWER 2 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2006:29409 HCAPLUS

DOCUMENT NUMBER: 144:130797

TITLE: Bleaching composition comprising a cyclic  
 hindered amine

INVENTOR(S): Resta, Stefano; Grande, Giovanni; Bianchetti,  
 Giulia Ottavia

PATENT ASSIGNEE(S): The Procter & Gamble Company, USA

SOURCE: Eur. Pat. Appl., 17 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1614742	A1	20060111	EP 2005-75958	20050422
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
WO 2006010089	A1	20060126	WO 2005-US24461	20050708
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
PRIORITY APPLN. INFO.:			EP 2004-447169	A 20040708
			EP 2005-75958	A 20050422

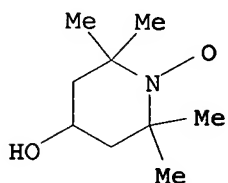
AB The present invention relates to a liq. bleaching compn. comprising  
 a hypohalite bleach, a cyclic hindered amine and a compd. selected  
 from the group consisting of bleach-unstable brighteners,  
 bleach-unstable coloring-agents and mixts. thereof.

IT 7681-52-9, **Sodium hypochlorite**  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (bleaching compn. comprising a cyclic hindered amine)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

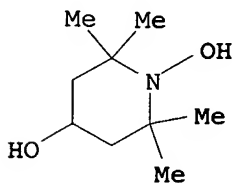
Cl- OH

● Na

IT 2226-96-2, 1-Oxyl-2,2,6,6-tetramethyl-4-hydroxypiperidine  
 3637-10-3  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (stabilizer; bleaching compn. comprising a cyclic hindered amine)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 3637-10-3 HCAPLUS  
 CN 4-Piperidinol, 1-hydroxy-2,2,6,6-tetramethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



CC 46-5 (Surface Active Agents and Detergents)  
 IT 7681-52-9, **Sodium hypochlorite**  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (bleaching compn. comprising a cyclic hindered amine)  
 IT 2226-96-2, 1-Oxyl-2,2,6,6-tetramethyl-4-hydroxypiperidine  
 2403-88-5, 4-Hydroxy-2,2,6,6-tetramethylpiperidine 2564-83-2,  
 1-Oxyl-2,2,6,6-tetramethylpiperidine 3637-10-3  
 873198-23-3, Tempoxy LO 873198-30-2, Tinogard SF-X  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (stabilizer; bleaching compn. comprising a cyclic hindered amine)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 3 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:729816 HCAPLUS

DOCUMENT NUMBER: 143:349015

TITLE: Technical Production of Aldehydes by Continuous  
Bleach Oxidation of Alcohols Catalyzed by  
4-Hydroxy-TEMPO

AUTHOR(S): Fritz-Langhals, Elke

CORPORATE SOURCE: Consortium fuer Elektrochemische Industrie GmbH,  
Wacker-Chemie GmbH, Munich, D-81379, Germany

SOURCE: Organic Process Research & Development (2005),  
9(5), 577-582

CODEN: OPRDFK; ISSN: 1083-6160

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Aldehydes were easily prep'd. from the corresponding alcs. in good to  
excellent yields by oxidn. with tech. bleach and catalytic amts. of  
4-hydroxy-2,2,6,6-tetramethyl-piperidine-1-oxyl (4-hydroxy TEMPO,  
HOT). Whereas the well-known batch process performed on lab. scale  
is not suitable for the tech. synthesis esp. of activated  
 $\beta$ -substituted aldehydes, this transformation can be performed  
continuously in a simple tube reactor. This layout meets all  
requirements necessary for the process, i.e., turbulent mixing of  
the biphasic mixt., removal of heat, short contact times, and high  
output. Thus, a single tube of 3 mm diam. renders about 60 mol of  
aldehyde per day.

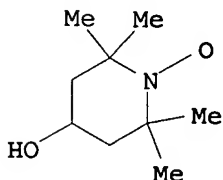
IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-piperidine-1-oxyl

RL: CAT (Catalyst use); USES (Uses)

(high yield tech. prodn. of aldehydes by continuous oxidn. of  
alcs. with bleach catalyzed by 4-hydroxy-TEMPO in tube reactor)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RGT (Reagent); RACT (Reactant or reagent)

(oxidn. reagent, free chlorine source; high yield tech. prodn. of  
aldehydes by continuous oxidn. of alcs. with bleach catalyzed by  
4-hydroxy-TEMPO in tube reactor)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
Section cross-reference(s): 24

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-piperidine-1-oxyl  
RL: CAT (Catalyst use); USES (Uses)  
(high yield tech. prodn. of aldehydes by continuous oxidn. of  
alcs. with bleach catalyzed by 4-hydroxy-TEMPO in tube reactor)

IT 7681-52-9, Sodium hypochlorite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(oxidn. reagent, free chlorine source; high yield tech. prodn. of  
aldehydes by continuous oxidn. of alcs. with bleach catalyzed by  
4-hydroxy-TEMPO in tube reactor)

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 4 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:543902 HCAPLUS

DOCUMENT NUMBER: 143:229434

TITLE: Enhancing selectivity in oxidation catalysis  
with sol-gel nanocomposites

AUTHOR(S): Gancitano, Pamela; Ciriminna, Rosaria; Testa,  
Maria Luisa; Fidalgo, Alexandra; Ilharco, Laura  
M.; Pagliaro, Mario

CORPORATE SOURCE: Istituto per lo Studio dei Materiali  
Nanostrutturati, CNR, Palermo, 90146, Italy

SOURCE: Organic & Biomolecular Chemistry (2005), 3(13),  
2389-2392  
CODEN: OBCRAK; ISSN: 1477-0520

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

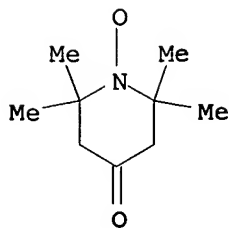
LANGUAGE: English

AB Valuable org. compds. such as  $\alpha$ -hydroxy acids are easily  
synthesized with relevant selectivity enhancement using a sol-gel  
hydrophobized nanostructured silica matrix doped with the  
organocatalyst TEMPO. E.g., ORMOSIL-supported TEMPO mediated the  
oxidn. of vic-diol 4-ClC<sub>6</sub>H<sub>4</sub>CMe(OH)CH<sub>2</sub>OH by NaOCl to give  
80% 4-ClC<sub>6</sub>H<sub>4</sub>CMe(OH)CO<sub>2</sub>H and 5% 4-ClC<sub>6</sub>H<sub>4</sub>COMe. 4-ClC<sub>6</sub>H<sub>4</sub>CMe(OH)CH<sub>2</sub>OH  
was prepd. by the RuCl<sub>3</sub>-catalyzed dihydroxylation of  
4-ClC<sub>6</sub>H<sub>4</sub>CMe:CH<sub>2</sub>.

IT 2896-70-0DP, reaction products with 3-  
aminopropyltrimethoxysilane, methyltrimethoxysilane, and tetra-Me  
orthosilicate  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(prepn. of  $\alpha$ -hydroxy carboxylic acids by oxidn. of diols  
mediated by ORMISOL-entrapped TEMPO)

RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



CC 23-16 (Aliphatic Compounds)  
 IT 681-84-5DP, Tetramethyl orthosilicate, reaction products with 3-aminopropyltrimethoxysilane, 4-oxo-TEMPO, and methyltrimethoxysilane 1185-55-3DP, Methyltrimethoxysilane, reaction products with 3-aminopropyltrimethoxysilane, 4-oxo-TEMPO, and tetra-Me orthosilicate 2896-70-0DP; reaction products with 3-aminopropyltrimethoxysilane, methyltrimethoxysilane, and tetra-Me orthosilicate 13822-56-5DP, 3-Aminopropyltrimethoxysilane, reaction products with methyltrimethoxysilane, 4-oxo-TEMPO, and tetra-Me orthosilicate  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (prepn. of  $\alpha$ -hydroxy carboxylic acids by oxidn. of diols mediated by ORMISOL-entrapped TEMPO)  
 REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 5 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2005:472218 HCAPLUS  
 DOCUMENT NUMBER: 143:8163  
 TITLE: Production of organosilicon compounds bearing carbonyl groups  
 INVENTOR(S): Ochs, Christian; Fritz-Langhals, Elke  
 PATENT ASSIGNEE(S): Wacker-Chemie G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 91 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005049697	A2	20050602	WO 2004-EP13137	20041118
WO 2005049697	A3	20060209		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,



SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
 VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,  
 AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,  
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL,  
 PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN,  
 GQ, GW, ML, MR, NE, SN, TD, TG

DE 10354259 A1 20050609 DE 2003-10354259

200311  
 20

PRIORITY APPLN. INFO.:

DE 2003-10354259 A

200311  
 20

AB In the title process, which is inexpensive and selective,  
 organosilicon compds. bearing carbinol groups are oxidized in the  
 presence of (cyclo)aliph., arom., or heterocyclic compds. bearing  
 NO-, NOH-, or -NHOH groups as catalysts. Adding 177 g 1.8M  
 NaOCl (pH 9.5) over 200 s to a mixt. of (3-  
 hydroxypropyl)dimethylsilyl group-terminated polydimethylsiloxane  
 (OH content 3.2%) 121, 4-hydroxy-2,2,6,6-tetramethylpiperidinyloxy  
 1.90, and NaBr 2.27 g, 50 mL satd. NaHCO<sub>3</sub>, and 400 mL CH<sub>2</sub>Cl<sub>2</sub> stirred  
 at -10° and stirring for 5 min gave a product with 96%  
 Si-bonded -CH<sub>2</sub>CH<sub>2</sub>CHO groups and 4% unreacted -(CH<sub>2</sub>)<sub>3</sub>OH groups.

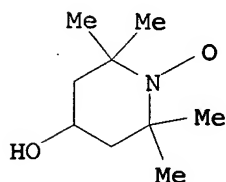
IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidiny-1-oxy

RL: CAT (Catalyst use); USES (Uses)

(catalysts for oxidn. of organosilicon compds. bearing hydroxyl  
 groups to carbonyl groups)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
 NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)

(catalysts for oxidn. of organosilicon compds. bearing hydroxyl  
 groups to carbonyl groups)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08G077-04  
CC 35-2 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 29  
ST oxidn silyl alc group carbonyl catalyst; hydroxypropyl group  
polysiloxane oxidn catalyst; hydroxyTEMPO catalyst oxidn silyl alc;  
sodium hypochlorite oxidn silyl alc  
IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidiny-1-oxy  
2564-83-2, TEMPO 3225-26-1, 4-(Benzoyloxy)-2,2,6,6-  
tetramethylpiperidiny-1-oxy 6146-44-7D, 1-Pyrrolidinyloxy,  
derivs. 6599-87-7, 4-Acetoxy-2,2,6,6-tetramethylpiperidiny-1-oxy  
14691-88-4, 4-Amino-2,2,6,6-tetramethylpiperidiny-1-oxy  
14691-89-5, 4-Acetamido-2,2,6,6-tetramethylpiperidiny-1-oxy  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts for oxidn. of organosilicon compds. bearing hydroxyl  
groups to carbonyl groups)  
IT 128-09-6, N-Chlorosuccinimide 937-14-4, 3-Chloroperoxybenzoic acid  
3240-34-4 7681-52-9, Sodium hypochlorite  
7782-44-7, Oxygen, reactions 10058-23-8 13824-96-9, Sodium  
hypobromite 31900-57-9D, Poly(dimethylsilanediol), hydroxypropyl  
group-terminated 37222-66-5, Oxone  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(catalysts for oxidn. of organosilicon compds. bearing hydroxyl  
groups to carbonyl groups)

L46 ANSWER 6 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2005:404362 HCAPLUS

DOCUMENT NUMBER: 143:285958

TITLE: Selective oxidation of alcohols to carbonyl  
compounds mediated by fluorine-tagged TEMPO  
radicals

AUTHOR(S): Holczknecht, Orsolya; Cavazzini, Marco; Quici,  
Silvio; Shepperson, Ian; Pozzi, Gianluca

CORPORATE SOURCE: CNR-Instituto di Scienze e Tecnologie Molecolari  
(ISTM), Milan, 20133, Italy

SOURCE: Advanced Synthesis & Catalysis (2005), 347(5),  
677-688

CODEN: ASCAF7; ISSN: 1615-4150

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Oxidn. of primary, benzylic and secondary alcs. into their  
corresponding aldehydes and ketones with safe, inexpensive oxidants  
was achieved in good yields under mild conditions in the presence of  
catalytic amts. of 2,2,6,6-tetramethylpiperidine-1-oxyl (TEMPO)  
radicals bearing perfluoroalkyl substituents. These  
"fluorine-tagged" TEMPOs were readily isolated from the reaction  
products by liq.-liq. or solid-phase extn., considerably simplifying  
the purifn. step. Their recyclability was strongly influenced by  
the nature of the oxidizing system. The best results were obtained  
using either [bis(acetoxy)iodo]benzene (BAIB) or aq. NaOCl  
as the primary oxidants. Fluorine TEMPO 10 could be reused up to  
six times in the BAIB oxidn. of 1-octanol with only minor loss of  
catalytic activity.

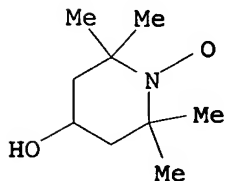
IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidn. of alcs. to carbonyl compds. mediated by fluorous-tagged  
TEMPO radicals)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



CC 22-7 (Physical Organic Chemistry)

Section cross-reference(s): 67

IT 108-77-0 335-64-8 2226-96-2 14691-88-4 36768-62-4

89373-67-1 200112-75-0

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidn. of alcs. to carbonyl compds. mediated by fluorous-tagged  
TEMPO radicals)

REFERENCE COUNT: 53 THERE ARE 53 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 7 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:903759 HCAPLUS

DOCUMENT NUMBER: 141:381254

TITLE: Crystalline polysaccharide derivatives, their  
production and their applications

INVENTOR(S): Vignon, Michel; Montanari, Suzelei; Habibi,  
Youssef

PATENT ASSIGNEE(S): Centre National de la Recherche Scientifique  
CNRS, Fr.

SOURCE: Fr. Demande, 68 pp.

CODEN: FRXXBL

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

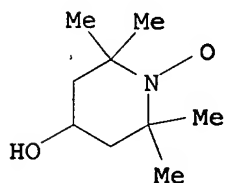
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2854161	A1	20041029	FR 2003-5195	20030428
PRIORITY APPLN. INFO.:			FR 2003-5195	20030428

AB The invention relates to cryst. polysaccharide derivs. in which at  
least part of the CH<sub>2</sub>OH groups are oxidized to CO<sub>2</sub>H groups, whereby  
the latter are able to be partly or entirely in the form of salts or

functionalized. These derivs. are characterized in that they are present in the form of aggregates comprising microcrystals and/or individualized microfibrils, with the lateral sizes of the microcrystals and microfibrils being on the order of 1-30 nm and their length up to .apprx.100  $\mu$ m, whereby the the microcrystals and microfibrils form aggregates in water. The products may be used as viscosifiers, stabilizers, superabsorbents, or chelators. In an example, cotton linters were oxidized with NaOCl in the presence of TEMPO and NaBr. Other examples deal with starch and chitin.

IT 2226-96-2, 4-Hydroxy-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (in prodn. of microcryst. and microfibrillar oxidized polysaccharide derivs.)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in prodn. of microcryst. and microfibrillar oxidized polysaccharide derivs.)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08B015-00  
 CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)  
 Section cross-reference(s): 44  
 IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 6599-87-7,  
 4-Acetoxy-TEMPO 7647-15-6, Sodium bromide, uses 9001-62-1,  
 Lipase 9002-10-2, Polyphenol oxidase 9003-99-0, Peroxidase  
 14691-88-4, 4-Amino-TEMPO 14691-89-5, 4-Acetamido-TEMPO  
 15178-63-9, 4-Maleimido-TEMPO 22690-04-6, 4-(Phosphonoxy)-TEMPO  
 31645-22-4, 4-(Benzyloxy)-TEMPO 80498-15-3, Laccase  
 RL: CAT (Catalyst use); USES (Uses)  
 (in prodn. of microcryst. and microfibrillar oxidized polysaccharide derivs.)  
 IT 7681-52-9, Sodium hypochlorite

10028-15-6, Ozone, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(in prodn. of microcryst. and microfibrillar oxidized polysaccharide derivs.)

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 8 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:527046 HCAPLUS

DOCUMENT NUMBER: 141:410474

TITLE: Oxidation of amino diols mediated by homogeneous and heterogeneous TEMPO

AUTHOR(S): Testa, Maria Luisa; Ciriminna, Rosaria; Hajji, Chakib; Garcia, Elena Zaballos; Ciclosi, Marco; Arques, Jose Sepulveda; Pagliaro, Mario

CORPORATE SOURCE: Istituto per lo Studio dei Materiali Nanostrutturati, CNR, Palermo, 90146, Italy

SOURCE: Advanced Synthesis & Catalysis (2004), 346(6), 655-660

CODEN: ASCAF7; ISSN: 1615-4150

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:410474

AB The conversion of amino diols to amino hydroxy acids by oxidn. of the primary hydroxy group mediated by homogeneous and heterogeneous TEMPO (2,2,6,6-tetramethylpiperidin-1-oxyl radical) is reported. The synthesis uses NaOCl as primary oxidant and TEMPO, either dissolved in the homogeneous phase or entrapped in a sol-gel matrix, as catalytic mediator. Homogeneous TEMPO is suitable for the oxidn. of aliph. methylamino diols, while the hybrid org.-inorg. silica sol-gel catalysts are more selective mediators for the oxidn. of benzylic amino diols like the potent antibiotic chloramphenicol which, under homogeneous conditions, are unselectively oxidized to benzoic acids.

IT 2896-70-0DP, 4-Oxo-TEMPO, reaction products with 3-aminopropyltrimethoxysilane in presence of NaBH3CN, sol-gel polycondensation products with alkoxysilanes

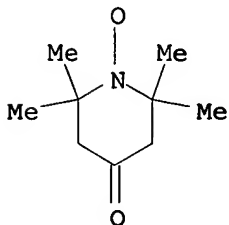
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)

(oxidn. of amino diols mediated by homogeneous and recyclable heterogeneous TEMPO)

RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. of amino diols mediated by homogeneous and recyclable heterogeneous TEMPO)  
RN 7681-52-9 HCAPLUS  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

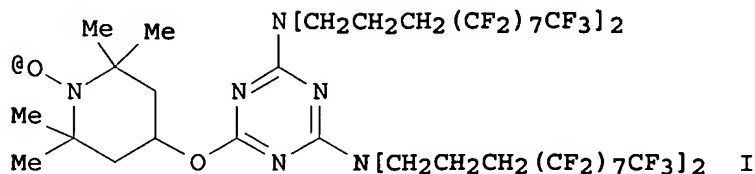
● Na

CC 21-2 (General Organic Chemistry)  
Section cross-reference(s): 67  
IT 681-84-5DP, Tetramethyl silicate, sol-gel polycondensation products with 4-oxo-TEMPO/3-aminopropyltrimethoxysilane reductive amination product with/without alkyltrimethoxysilanes 1067-25-0DP, Trimethoxy(propyl)silane, sol-gel polycondensation products with 4-oxo-TEMPO/3-aminopropyltrimethoxysilane reductive amination product and tetra-Me silicate 1185-55-3DP, Trimethoxy(methyl)silane, sol-gel polycondensation products with 4-oxo-TEMPO/3-aminopropyltrimethoxysilane reductive amination product and tetra-Me silicate 2896-70-0DP, 4-Oxo-TEMPO, reaction products with 3-aminopropyltrimethoxysilane in presence of NaBH<sub>3</sub>CN, sol-gel polycondensation products with alkoxysilanes 13822-56-5DP, 3-Aminopropyltrimethoxysilane, reaction products with 4-oxo-TEMPO in presence of NaBH<sub>3</sub>CN, sol-gel polycondensation products with alkoxysilanes  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(oxidn. of amino diols mediated by homogeneous and recyclable heterogeneous TEMPO)  
IT 56-75-7, Chloramphenicol 7681-52-9, Sodium hypochlorite 24424-99-5, Di-tert-butyl dicarbonate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. of amino diols mediated by homogeneous and recyclable heterogeneous TEMPO)

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 9 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:385024 HCAPLUS  
DOCUMENT NUMBER: 141:123444  
TITLE: Synthesis and catalytic activity of a fluororous-tagged TEMPO radical  
AUTHOR(S): Pozzi, Gianluca; Cavazzini, Marco; Holczknecht, Orsolya; Quici, Silvio; Shepperson, Ian  
CORPORATE SOURCE: CNR-Istituto di Scienze e Tecnologie Molecolari (ISTM), Milan, 20133, Italy  
SOURCE: Tetrahedron Letters (2004), 45(22), 4249-4251  
CODEN: TELEAY; ISSN: 0040-4039

PUBLISHER: Elsevier  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 141:123444  
 GI



AB A fluorine-tagged TEMPO radical has been prepared and its catalytic activity in the chemoselective oxidation of alcohols to carbonyl compounds has been investigated. The target compound thus prepared was 4-[[[4,6-bis[(4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-heptafluoroundecyl)amino]-1,3,5-triazin-2-yl]oxy]-2,2,6,6-tetramethyl-1-piperidinyloxy] (I). The new fluorine radical proved to be an efficient, selective and easily recoverable catalyst, which can be conveniently used in standard organic solvents and then isolated and recycled by fluorine liquid-liquid extraction. The fluorine biphasic oxidation of 1-octanol using I as catalyst and bis(acetato- $\kappa$ O)phenyliodine as oxidant gave octanal with high selectivity. When the reaction was carried out in pure dichloromethane, I was recovered by fluorine extraction using perfluoro-1,3-dimethylcyclohexane.

IT 7681-52-9, Sodium hypochlorite (NaOCl)

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidant; preparation of [[bis[(heptafluoroundecyl)amino]triazinyl]oxy]-1-piperidinyloxy radical, study of its catalytic activity, and application toward chemoselective oxidation of alcohols to aldehydes or ketones)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

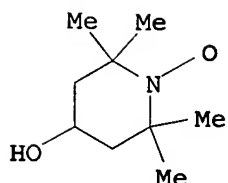
● Na

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (preparation of [[bis[(heptafluoroundecyl)amino]triazinyl]oxy]-1-piperidinyloxy radical, study of its catalytic activity, and application toward chemoselective oxidation of alcohols to aldehydes or ketones)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- CC 25-16 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
Section cross-reference(s): 23, 24
- IT 87-90-1, 1,3,5-Trichloro-1,3,5-triazine-2,4,6(1H,3H,5H)-trione  
3240-34-4, Bis(acetato- $\kappa$ O)phenyliodine 7681-52-9,  
Sodium hypochlorite (NaOCl)  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidant; prepn. of [[bis[(heptadecafluoroundecyl)amino]triazinyl  
]oxy]-1-piperidinyloxy radical, study of its catalytic activity,  
and application toward chemoselective oxidn. of alcs. to  
aldehydes or ketones)
- IT 98-85-1,  $\alpha$ -Methylbenzenemethanol 100-51-6, Benzenemethanol,  
reactions 104-54-1, 3-Phenyl-2-propen-1-ol 108-77-0,  
2,4,6-Trichloro-1,3,5-triazine 111-87-5, 1-Octanol, reactions  
112-42-5, 1-Undecanol 123-96-6, 2-Octanol 696-71-9, Cyclooctanol  
873-75-6, 4-Bromobenzenemethanol 1653-30-1, 2-Undecanol  
2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
200112-75-0, 1,1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-Heptadecafluoro-11-  
iodoundecane  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of [[bis[(heptadecafluoroundecyl)amino]triazinyl]oxy]-1-  
piperidinyloxy radical, study of its catalytic activity, and  
application toward chemoselective oxidn. of alcs. to aldehydes or  
ketones)
- REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 10 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2004:177507 HCAPLUS

DOCUMENT NUMBER: 141:260458

TITLE: Preparation of tetramethylpiperidine-1-  
oxoammonium salts and their use as oxidants in  
organic chemistry. A review

AUTHOR(S): Merbouh, Naby; Bobbitt, James M.; Brueckner,  
Christian

CORPORATE SOURCE: Department of Chemistry, University of  
Connecticut, Storrs, CT, 06269-3060, USA

SOURCE: Organic Preparations and Procedures  
International (2004), 36(1), 3-31  
CODEN: OPPIAK; ISSN: 0030-4948

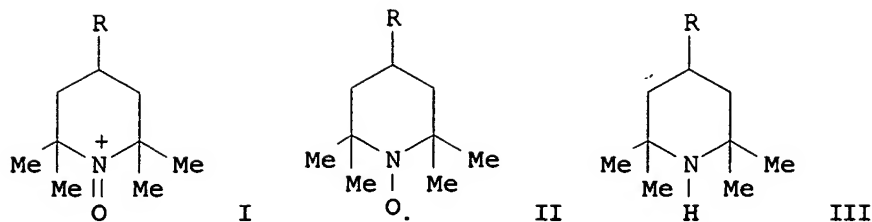
PUBLISHER: Organic Preparations and Procedures, Inc.

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

GI



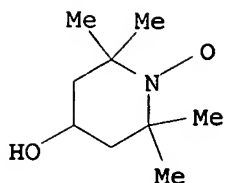


AB A review. The discovery of 2,2,6,6-tetramethylpiperidine-based oxoammonium salts (I; R = oxo, H, OH, NH<sub>2</sub>, NHAc, OMe, OBz) in 1965 by Golubev et al has led to the synthesis of a no. of oxoammonium-based oxidizing agents with diverse properties. However, many of the oxoammonium salts or their precursors are either not com. available or are expensive. Reports of their prepn. are spread over 40 yr of literature. This review is a compilation of the most often cited and most practical procedures for their syntheses and includes exptl. details. A large body of work detailing the use of oxoammonium salts as catalytic and stoichiometric oxidants in preparative org. chem. also accumulated over the past four decades. The review of their use, however, will focus on the literature from 1990 to date, excluding the patent literature, as a no. of excellent earlier reviews on select aspects of this chem. are available. The goal of this review is to allow org. chemists to prep. and study oxoammonium salts, irresp. of their list prices or com. availability. Oxoammonium salts I are derived from nitroxide free radicals (II) by a one-electron oxidn. Nitroxides are generally prepd. by oxidn. of the corresponding amine 2,2,6,6-tetramethylpiperidine derivs. (III). The α-Me groups are crucial for the stabilization of the oxoammonium salts. A no. of 4-substituted tetramethylpiperidine derivs. were used for the synthesis of oxoammonium salts, combined with several counter ions. Oxoammonium salts are potent but selective oxidants. They can either be prepd. in situ from a nitroxide by reaction with a secondary oxidant, thus making the nitroxide a catalyst, or they can be used as stoichiometric oxidants. They are versatile oxidants in org. chem. and the mild, transition metal-free reaction conditions and the selectivity of the oxidns. recommend these oxidants for wider use. Further, the option for tandem reactions will greatly increase the utility of these reagents.

IT 2226-96-2P, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 2896-70-0P, 4-Oxo-2,2,6,6-tetramethyl-1-piperidinyloxy  
 RL: CAT (Catalyst use); RCT (Reactant); RGT (Reagent); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their use as oxidants in org. chem.)

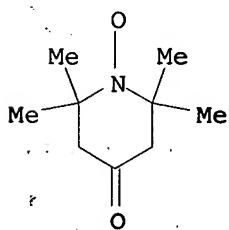
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 33247-84-6P 139425-71-1P

RL: CAT (Catalyst use); RGT (Reagent); SPN (Synthetic preparation);  
 PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their  
 use as oxidants in org. chem.)

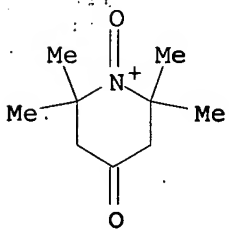
RN 33247-84-6 HCAPLUS

CN Piperidinium, 2,2,6,6-tetramethyl-1,4-dioxo-, tetrafluoroborate(1-)  
 (8CI, 9CI) (CA INDEX NAME)

CM 1

CRN 45985-26-0

CMF C9 H16 N O2

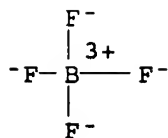


CM 2

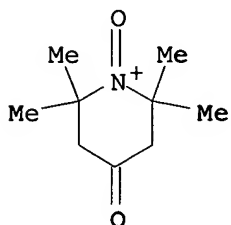
CRN 14874-70-5

CMF B F4

CCI CCS



RN 139425-71-1 HCAPLUS  
 CN Piperidinium, 2,2,6,6-tetramethyl-1,4-dioxo-, chloride (9CI) (CA INDEX NAME)



● Cl<sup>-</sup>

IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their  
 use as oxidants in org. chem.)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 27-0 (Heterocyclic Compounds (One Hetero Atom))  
 IT 2226-96-2P, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 2564-83-2P, 2,2,6,6-Tetramethyl-1-piperidinyloxy 2896-70-0P  
 , 4-Oxo-2,2,6,6-tetramethyl-1-piperidinyloxy 3225-26-1P,  
 4-Benzoyloxy-2,2,6,6-tetramethyl-1-piperidinyloxy 14691-88-4P,  
 4-Amino-2,2,6,6-tetramethyl-1-piperidinyloxy 14691-89-5P,  
 4-Acetamido-2,2,6,6-tetramethyl-1-piperidinyloxy 95407-69-5P,  
 4-Methoxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 RL: CAT (Catalyst use); RCT (Reactant); RGT (Reagent); SPN  
 (Synthetic preparation); PREP (Preparation); RACT (Reactant or  
 reagent); USES (Uses)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their  
 use as oxidants in org. chem.)

IT 26864-01-7P 26864-02-8P 27403-27-6P 27403-30-1P 33247-78-8P  
 33247-81-3P 33247-84-6P 85917-27-7P 90246-27-8P  
 95407-70-8P 139425-71-1P 219543-09-6P  
 RL: CAT (Catalyst use); RGT (Reagent); SPN (Synthetic preparation);  
 PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their  
 use as oxidants in org. chem.)

IT 67-64-1, Acetone, reactions 98-88-4, Benzoyl chloride 108-94-1,  
 Cyclohexanone, reactions 110-63-4, 1,4-Butanediol, reactions  
 121-33-5, 2-Methoxy-4-formylphenol 556-72-9, Acetone 2047-91-8  
 7664-41-7, Ammonia, reactions 7681-52-9, Sodium  
 hypochlorite 36768-62-4, 4-Amino-2,2,6,6-  
 tetramethylpiperidine  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of tetramethylpiperidine-1-oxoammonium salts and their  
 use as oxidants in org. chem.)

REFERENCE COUNT: 117 THERE ARE 117 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L46 ANSWER 11 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:159015 HCAPLUS  
 DOCUMENT NUMBER: 140:199022  
 TITLE: Procedure for the production of alkynecarboxylic  
 acids by the oxidation of alkynyl alcohols with  
 hypohalites in the presence of a nitroxyl  
 compound  
 INVENTOR(S): Stohrer, Juergen; Fritz-Langhals, Elke;  
 Bruenninghaus, Christian  
 PATENT ASSIGNEE(S): Consortium fuer Elektrochemische Industrie  
 G.m.b.H., Germany  
 SOURCE: Ger., 11 pp.  
 CODEN: GWXXAW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10244633	B3	20040226	DE 2002-10244633	200209 25
EP 1403240	A1	20040331	EP 2003-20442	200309 11
EP 1403240	B1	20040721		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
AT 271533	E	20040815	AT 2003-20442	200309 11
ES 2222450	T3	20050201	ES 2003-3020442	200309

US 2004059154 A1 20040325 US 2003-667810 11  
200309  
22  
JP 2004115519 A2 20040415 JP 2003-331417 200309  
24  
PRIORITY APPLN. INFO.: DE 2002-10244633 A 200209  
25

OTHER SOURCE(S): CASREACT 140:199022

AB Alkynecarboxylic acids (e.g., propargylic acid) are prepd. in high yield and selectivity by the oxidn. of an alkynyl alc. (e.g., propargylic alc.) with a hypohalite (e.g., sodium hypochlorite) in the presence of a nitroxyl compd. (e.g., 4-hydroxy-TEMPO) at a pH value >7 by continuous addn. of the alkynyl alc. and the hypohalogenite to the reaction mixt.

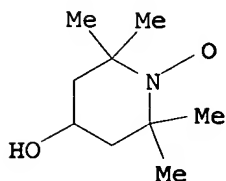
IT 2226-96-2, 4-Hydroxy-TEMPO

RL: CAT (Catalyst use); USES (Uses)

(in a procedure for the prodn. of alkynecarboxylic acids by the oxidn. of alkynyl alcs. with hypohalites in the presence of a nitroxyl compd.)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)

(oxidant; procedure for the prodn. of alkynecarboxylic acids by the oxidn. of alkynyl alcs. with hypohalites in the presence of a nitroxyl compd.)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C051-29

ICS C07C057-18; C07C057-20; C07C057-22

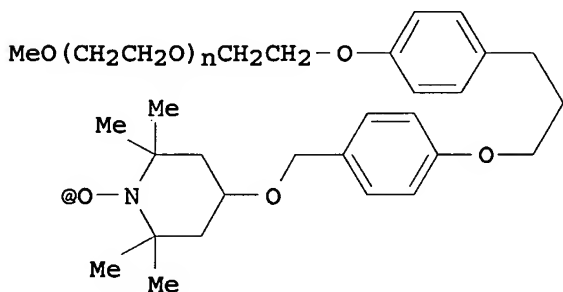
CC 23-16 (Aliphatic Compounds)

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

Section cross-reference(s): 45  
 IT 2226-96-2, 4-Hydroxy-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (in a procedure for the prodn. of alkynecarboxylic acids by the oxidn. of alkynyl alcs. with hypohalites in the presence of a nitroxyl compd.)  
 IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidant; procedure for the prodn. of alkynecarboxylic acids by the oxidn. of alkynyl alcs. with hypohalites in the presence of a nitroxyl compd.)  
 REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 12 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2004:42420 HCAPLUS  
 DOCUMENT NUMBER: 140:217078  
 TITLE: Poly(ethylene glycol)-Supported TEMPO: An Efficient, Recoverable Metal-Free Catalyst for the Selective Oxidation of Alcohols  
 AUTHOR(S): Pozzi, Gianluca; Cavazzini, Marco; Quici, Silvio; Benaglia, Maurizio; Dell'Anna, Gianmaria  
 CORPORATE SOURCE: CNR-Istituto di Scienze e Tecnologie Molecolari, Milan, I-20133, Italy  
 SOURCE: Organic Letters (2004), 6(3), 441-443  
 CODEN: ORLEF7; ISSN: 1523-7060  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 140:217078  
 GI

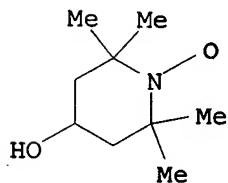


I

AB Poly(ethylene glycol)-supported TEMPO (PEG-TEMPO) has been prepd., and its catalytic activity in the chemoselective oxidn. of alcs. with stoichiometric amts. of org. or inorg. oxidants has been investigated. The new metal-free catalyst exhibits high activity and is easily removed from the reaction mixt. by filtration. Recycling expts. showed that PEG-TEMPO can be reused up to six times with no loss of catalytic activity. The linker-bound catalyst thus prepd. was polyethylene glycol-bound [[4-[3-(4-hydroxyphenyl)propoxy]phenyl]methoxy]-2,2,6,6-tetramethyl-1-

piperidinyloxy (I). The influence of solvent on the oxidn. of 1-octanol using bis(acetato-κO)phenyliodine was unexpected: dichloromethane gave good results, whereas the use of acetic acid did not enhance the oxidn. rate.

- IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of poly(ethylene glycol)-supported TEMPO as efficient, recoverable metal-free catalyst for selective oxidn. of alcs.)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



- IT 7681-52-9, Sodium hypochlorite (NaClO)  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (prepn. of poly(ethylene glycol)-supported TEMPO as efficient, recoverable metal-free catalyst for selective oxidn. of alcs.)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

- CC 21-2 (General Organic Chemistry)  
 IT Alcohols, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (secondary; prepn. of carbonyl compds. by oxidn. of alcs. using sodium hypochlorite as oxidant and poly(ethylene glycol)-supported TEMPO as catalyst under bromide-free conditions)  
 IT 98-85-1, α-Methylbenzenemethanol 100-51-6, Benzenemethanol, reactions 104-54-1, Cinnamyl alcohol 108-93-0, Cyclohexanol, reactions 112-42-5, 1-Undecanol 123-96-6, 2-Octanol 696-71-9, Cyclooctanol 873-75-6, 4-Bromobenzenemethanol 1653-30-1, 2-Undecanol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of carbonyl compds. by oxidn. of alcs. using sodium hypochlorite as oxidant and poly(ethylene glycol)-supported TEMPO as catalyst under bromide-free conditions)  
 IT 98-86-2P, 1-Phenylethanone, preparation 100-52-7P, Benzaldehyde,

preparation 104-55-2P, Cinnamaldehyde 108-94-1P, Cyclohexanone,  
preparation 111-13-7P, 2-Octanone 112-12-9P, 2-Undecanone  
112-44-7P, Undecanal 502-49-8P, Cyclooctanone 1122-91-4P,  
4-Bromobenzaldehyde

RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of carbonyl compds. by oxidn. of alcs. using  
**sodium hypochlorite** as oxidant and  
poly(ethylene glycol)-supported TEMPO as catalyst under  
bromide-free conditions)

IT 111-87-5, 1-Octanol, reactions 2226-96-2,  
4-Hydroxy2,2,6,6-tetramethyl-1-piperidinyloxy 143116-30-7,  
1-(Bromomethyl)-4-(2-propenyloxy)benzene

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of poly(ethylene glycol)-supported TEMPO as efficient,  
recoverable metal-free catalyst for selective oxidn. of alcs.)

IT 87-90-1, Trichloroisocyanuric acid 3240-34-4, Bis(acetato-  
κO)phenyliodine 7681-52-9, **Sodium**  
**hypochlorite (NaClO)**

RL: RGT (Reagent); RACT (Reactant or reagent)  
(prepn. of poly(ethylene glycol)-supported TEMPO as efficient,  
recoverable metal-free catalyst for selective oxidn. of alcs.)

REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 13 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:864575 HCAPLUS

DOCUMENT NUMBER: 141:158730

TITLE: Nitroxide-mediated oxidation of cellulose using  
TEMPO derivatives: HPSEC and NMR analyses of the  
oxidized products

AUTHOR(S): Shibata, Izumi; Isogai, Akira

CORPORATE SOURCE: Graduate School of Agricultural and Life  
Sciences, The University of Tokyo, Bunkyo-ku,  
Tokyo, 113-8657, Japan

SOURCE: Cellulose (Dordrecht, Netherlands) (2003),  
10(4), 335-341

CODEN: CELLE8; ISSN: 0969-0239

PUBLISHER: Kluwer Academic Publishers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Regenerated cellulose (viscose rayon) was oxidized using NaBr,  
**NaClO** and 2,2,6,6-tetramethylpiperidine-1-oxyl radical  
(TEMPO) or one of ten related nitroxyl radicals in water at pH  
10-11. The C6 primary hydroxyl groups in rayon were oxidized to  
carboxyl groups in most cases, thus giving water-sol. products.  
However, the oxidn. times required for complete dissoln. of the  
products varied substantially, depending on the nitroxyl radical  
used. Wt. av. ds. p. (DPw) of the oxidized products were detd. by  
means of high performance size exclusion chromatog. (HPSEC) using  
pullulan stds. All the products had bimodal HPSEC distribution  
patterns, probably reflected by the solid-state structure of viscose  
rayon. When 4-acetamido-TEMPO and 4-carboxy-TEMPO were used,  
cellouronic acids having almost homogeneous chem. structures with  
higher DPw than for TEMPO were obtained quant. within 30 min. The  
oxidns. using 4-amino-TEMPO, 4-carboxy-PROXYL and 4-carbamoyl-PROXYL



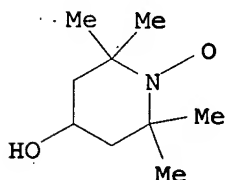
gave cellouronic acids having the highest DPw, although reaction times of more than 4 h were required, and some side reactions occurred on the products.

IT 7681-52-9, Sodium hypochlorite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (high performance SEC and NMR analyses of oxidized products of nitroxide-mediated oxidn. of cellulose using)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

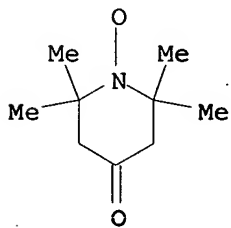
Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-TEMPO 2896-70-0, 4-Oxo-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (high performance SEC and NMR analyses of oxidized products of nitroxide-mediated oxidn. of cellulose using TEMPO derivs.)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



CC 43-3 (Cellulose, Lignin, Paper, and Other Wood Products)  
 Section cross-reference(s): 27  
 IT 7647-15-6, Sodium bromide (NaBr), reactions 7681-52-9, Sodium hypochlorite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (high performance SEC and NMR analyses of oxidized products of

nitroxide-mediated oxidn. of cellulose using)  
 IT 2154-68-9 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2  
 2896-70-0, 4-Oxo-TEMPO 3229-73-0, 3-Carbamoyl-2,2,5,5-  
 tetramethyl-3-pyrrolin-1-ylóxyl 4399-80-8, 3-Carbamoyl-PROxyl  
 14691-88-4, 4-Amino-TEMPO 14691-89-5, 4-Acetamido-TEMPO  
 22690-04-6, 4-Phosphonooxy-TEMPO 24567-97-3, 4-(2-Bromoacetamido)-  
 TEMPO 37149-18-1, 4-Carboxy-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (high performance SEC and NMR analyses of oxidized products of  
 nitroxide-mediated oxidn. of cellulose using TEMPO derivs.)  
 REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

L46 ANSWER 14 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2003:777759 HCAPLUS  
 DOCUMENT NUMBER: 139:276804  
 TITLE: Process for producing heterocyclic aldehyde  
 INVENTOR(S): Shiomi, Yasuhiro; Uno, Osamu; Ohta, Akio;  
 Sunakami, Takeshi  
 PATENT ASSIGNEE(S): Koei Chemical Co., Ltd., Japan  
 SOURCE: PCT Int. Appl., 48 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003080575	A1	20031002	WO 2003-JP3568	20030325
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003221048	A1	20031008	AU 2003-221048	20030325
GB 2404190	A1	20050126	GB 2004-21452	20030325
US 2005124807	A1	20050609	US 2003-509228	20030325
PRIORITY APPLN. INFO.:				JP 2002-86974 A

200203  
26

WO 2003-JP3568

W

200303  
25

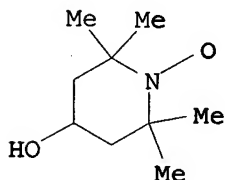
OTHER SOURCE(S): MARPAT 139:276804

AB The patent relates to a process in which a heterocyclic alc. is oxidized to produce a heterocyclic aldehyde with high selectivity in high yield. The process comprises reacting a heterocyclic compd. having per mol. at least one hydroxymethyl group bonded to a carbon atom of the heterocycle with a hypohalogenous acid salt in the presence of a base to oxidize the hydroxymethyl group to thereby produce the corresponding heterocyclic aldehyde, wherein the reaction is conducted in the presence of a 2,2,6,6-tetramethylpiperidin-1-oxyl deriv. having per mol. two or more 2,2,6,6-tetramethylpiperidin-1-oxyl-4-yl groups. Thus, 3-pyridine-methanol was oxidized by sodium hypochlorite in presence of an oligomer deriv. obtained from Chimassorb 944LD with hydrogen peroxide and generated 3-pyridinecarbaldehyde (90.1%) and nicotinic acid (3.4%).

IT 2226-96-2DP, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-N-oxyl, reaction product with poly(2-isocyanatoethyl methacrylate)  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(in prepn. of heterocyclic aldehyde)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI). (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(in prepn. of heterocyclic aldehyde)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

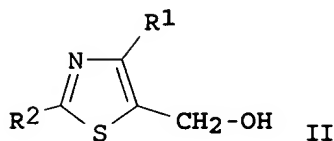
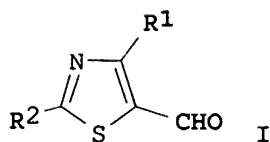
● Na

IC ICM C07D213-48

ICS C07D333-16; C07D213-30  
CC 27-1 (Heterocyclic Compounds (One Hetero Atom))  
ST heterocyclic aldehyde prepn sodium hypochlorite  
piperidinyll oligomer  
IT 2226-96-2DP, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-N-oxy,  
reaction product with poly(2-isocyanatoethyl methacrylate)  
71878-19-8DP, Chimassorb 944LD, oligomer prepd. in presence of  
hydrogen peroxide 88007-27-6DP, 2-Isocyanatoethyl methacrylate  
homopolymer, reaction product with 4-hydroxy-2,2,6,6-  
tetramethylpiperidine-1-oxy 360785-62-2DP, Chimassorb 2020FDL,  
oligomer prepd. in presence of hydrogen peroxide  
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(in prepn. of heterocyclic aldehyde)  
IT 7681-52-9, Sodium hypochlorite  
7722-84-1, Hydrogen peroxide, reactions  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(in prepn. of heterocyclic aldehyde)  
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 15 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:734761 HCAPLUS  
DOCUMENT NUMBER: 139:246023  
TITLE: Manufacturing method of 4-alkyl-5-formylthiazole  
derivatives having high yields  
INVENTOR(S): Tanaka, Hideo; Kuroboshi, Manabu; Kameyama,  
Yutaka  
PATENT ASSIGNEE(S): Otsuka Chemical Holdings Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003261547	A2	20030919	JP 2002-61848	200203 07
PRIORITY APPLN. INFO.: JP 2002-61848				200203 07
OTHER SOURCE(S): CASREACT 139:246023; MARPAT 139:246023 GI				



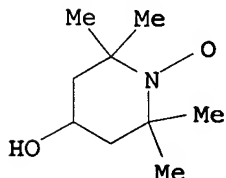
AB The patent relates to the prepn. of 4-alkyl-5-formylthiazole derivs. of formula I from precursor of formula II wherein R1 is C1-C4 alkyl, and R2 is H or substituted amino group. The prepn. is conducted in presence of N-oxyl catalyst by two-phase reaction in org. solvents such as carboxylic acid esters, Me Et ketone, Me iso-Pr ketone, and Me iso-Bu ketone. Thus, 5-formyl-4-methylthioazole prep. from hydroxymethylthiazole precursor with catalyst 4-benzoyloxy-2,2,6,6-tetramethylpiperidine-N-oxyl in Me Et ketone in presence of sodium bromide, sodium bicarbonate, and **sodium hypochlorite** showed 94% yield compared to 41% for a similar prepn. conducted in methylene chloride.

IT 2226-96-2

RL: CAT (Catalyst use); USES (Uses)  
(in prepn. of 4-alkyl-5-formylthiazole deriv.)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C07D277-24

ICS C07B061-00

CC 28-7 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 2154-33-8 2226-96-2 2516-92-9 2564-83-2 3225-26-1,  
4-Benzoyloxy-2,2,6,6-tetramethylpiperidine N-oxyl 38078-71-6  
95407-69-5 132207-24-0 132207-25-1

RL: CAT (Catalyst use); USES (Uses)  
(in prepn. of 4-alkyl-5-formylthiazole deriv.)

L46 ANSWER 16 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2003:652130 HCAPLUS

DOCUMENT NUMBER: 139:181969

TITLE: Process for the preparation of alkynoic acids and alkynoic acid esters of alkynols via the oxidation of alkynols

INVENTOR(S): Stohrer, Juergen; Fritz-Langhals, Elke;

Brueninghaus, Christian; Stauch, Dagmar

PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie

SOURCE: G.m.b.H., Germany  
 Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1336599	A1	20030820	EP 2003-2103	20030130
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
DE 10206619	A1	20031009	DE 2002-10206619	20020215
DE 10206619	B4	20040325		
US 2003158439	A1	20030821	US 2003-365887	20030213
PRIORITY APPLN. INFO.:			DE 2002-10206619	A 20020215

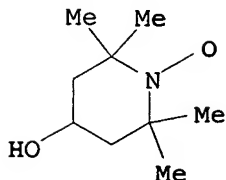
OTHER SOURCE(S): CASREACT 139:181969  
 AB Alkynoic acids (e.g., propynoic acid) and alkynoic acid esters of alkynols (e.g., 2-propyn-1-yl propynoate) are prepd. in high yield and selectivity via the oxidn. of alkynols (e.g., propargyl alc.) in the presence of 1-10 mol-equiv. of a hypohalogenite (e.g., sodium hypochlorite) and in the presence of a nitroxy compds. (e.g., TEMPO) at a pH of <7.  
 IT 7681-52-9, Sodium hypochlorite  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (oxidant; process for the prepn. of alkynoic acids and alkynoic acid esters of alkynols via the oxidn. of alkynols)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (process for the prepn. of alkynoic acids and alkynoic acid esters of alkynols via the oxidn. of alkynols)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX

NAME)



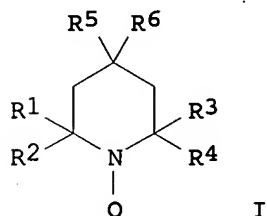
IC ICM C07C051-29  
 ICS C07C057-20; C07C057-22; C07C057-24; C07C057-42; C07C067-40;  
 C07C069-606  
 CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 Section cross-reference(s): 23, 48  
 IT 7681-52-9, **Sodium hypochlorite**  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (oxidant; process for the prepn. of alkynoic acids and alkynoic  
 acid esters of alkynols via the oxidn. of alkynols)  
 IT 2226-96-2, 4-Hydroxy-TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (process for the prepn. of alkynoic acids and alkynoic acid  
 esters of alkynols via the oxidn. of alkynols)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L46 ANSWER 17 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2003:297635 HCAPLUS  
 DOCUMENT NUMBER: 138:303933  
 TITLE: Preparation of aldehydes or ketones by catalytic  
 oxidation of alcohols in the presence of  
 nitroxyl compounds  
 INVENTOR(S): Fritz-Langhals, Elke; Petersen, Hermann;  
 Stohrer, Juergen  
 PATENT ASSIGNEE(S): Consortium Fuer Elektrochemische Industrie GmbH,  
 Germany  
 SOURCE: Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1302456	A1	20030416	EP 2002-22244	200210 02
EP 1302456	B1	20040102		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
DE 10156138	A1	20030430	DE 2001-10156138	

AT 257136	E	20040115	AT 2002-22244	200111 15
ES 2211848	T3	20040716	ES 2002-2022244	200210 02
US 2003073871	A1	20030417	US 2002-264682	200210 02
US 6750371	B2	20040615		200210 04
PRIORITY APPLN. INFO.:			DE 2001-10150164	A 200110 11
			DE 2001-10156138	A 200111 15

OTHER SOURCE(S): CASREACT 138:303933; MARPAT 138:303933  
GI



AB Aldehydes or ketones are prep'd. by continuous reacting alcs. in an org. liq. phase with an oxidizing agent in aq. phase in the presence of nitroxyl compds. [I; R1-R4 = alkyl, alkenyl, aryl, aralkyl,; R5, R6 = H, OH, cyano, halo, (branched) (satd.) alkyl, (hetero)aryl, aralkyl, etc.]. The reaction is carried out by intensive intermixing the phases and the contacting time of the phases amts. 0.1 s-15 min. Thus, a soln. of (Me)3CCH2OH and 4-acetamido-TEMPO in CH2Cl2, a soln. of NaOCl and CO2, and a soln. of NaBr in H2O were pumped with different pumping rates by using a static mixing element in a cooled Ti spiral pipe to give 93% (Me)3CCHO.

IT 7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidizing agent; for prepn. of aldehydes or ketones by catalytic oxidn. of alcs. in presence of nitroxyl compds.)

RN 7681-52-9 HCAPLUS

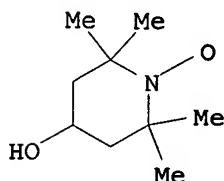
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidyl-1-oxyl  
RL: CAT (Catalyst use); USES (Uses)  
(prepn. of aldehydes or ketones by catalytic oxidn. of alcs. in  
presence of nitroxyl compds.)  
RN 2226-96-2 HCAPLUS  
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



IC ICM C07B041-06  
ICS C07C045-30; C07C047-198; C07D209-48  
CC 23-14 (Aliphatic Compounds)  
ST aldehyde prepn continuous mixing tube reactor; ketone prepn  
turbulent mixing tube reactor; alc catalytic oxidn **sodium  
hypochlorite** sodium bromide TEMPO  
IT 7681-52-9, **Sodium hypochlorite**  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidizing agent; for prepn. of aldehydes or ketones by catalytic  
oxidn. of alcs. in presence of nitroxyl compds.)  
IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidyl-1-oxyl  
2564-83-2, TEMPO 14691-89-5, 4-Acetamino-2,2,6,6-  
tetramethylpiperidine-1-oxyl  
RL: CAT (Catalyst use); USES (Uses)  
(prepn. of aldehydes or ketones by catalytic oxidn. of alcs. in  
presence of nitroxyl compds.)  
REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 18 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2003:150421 HCAPLUS  
DOCUMENT NUMBER: 138:172129  
TITLE: Making carboxylated cellulose fibers and paper  
products  
INVENTOR(S): Jewell, Richard A.; Komen, Joseph Lincoln; Su,  
Bing; Weerawarna, S. Ananda; Li, Yong  
PATENT ASSIGNEE(S): Weyerhaeuser Company, USA  
SOURCE: U.S., 23 pp., Cont.-in-part of U.S. 6,379,494.  
CODEN: USXXAM

DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6524348	B1	20030225	US 2000-641276	20000817
US 6379494	B1	20020430	US 1999-418909	19991015
PRIORITY APPLN. INFO.:			US 1999-272137	B2 19990319
			US 1999-418909	A2 19991015

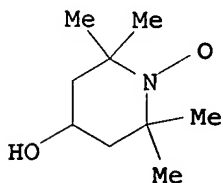
OTHER SOURCE(S): MARPAT 138:172129

AB The title method of making carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed comprises oxidn. and stabilized stages. The title method involves the use of cyclic nitroxide free radical compds. as a primary oxidant and a hypohalite salt as a secondary oxidant in an aq. environment. Preferably the oxidized cellulose is then stabilized against D.P. loss in alk. environments and color reversion with a reducing agent such as Na borohydride. Alternatively it may be treated with an tertiary oxidant such as Na chlorite. The method results in a high percentage of carboxyl groups located at the fiber surface. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives. The product is also useful as an additive to recycled fiber to increase strength. The method can be used to improve properties of either virgin or recycled fiber. It does not require high  $\alpha$ -cellulose fiber but is suitable for regular market pulps.

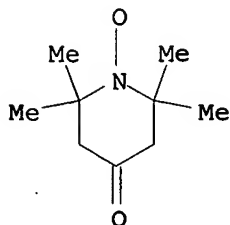
IT 2226-96-2, 4-Hydroxy-TEMPO 2896-70-0, 4-Oxo-TEMPO  
 RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses) (cellulose fiber treated with; making carboxylated cellulose fibers for papermaking)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS  
 CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, **Sodium hypochlorite**  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (cellulose fiber treated with; making carboxylated cellulose  
 fibers for papermaking)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM D06M023-00  
 ICS D21C009-00; D21H011-20  
 INCL 008116100; 008181000; 162009000  
 CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)  
 IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 2564-87-6  
 2896-70-0, 4-Oxo-TEMPO 3229-53-6 3264-93-5 14691-88-4,  
 4-Amino-TEMPO 14691-89-5 31645-22-4 95407-69-5,  
 4-Methoxy-TEMPO 98254-32-1 154186-17-1 184160-78-9  
 RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)  
 (cellulose fiber treated with; making carboxylated cellulose  
 fibers for papermaking)  
 IT 7647-15-6, Sodium bromide, uses 7681-52-9, **Sodium  
 hypochlorite** 7722-84-1, Hydrogen peroxide, uses  
 7726-95-6, Bromine, uses 7738-94-5, Chromic acid (H<sub>2</sub>CrO<sub>4</sub>)  
 7758-19-2, Sodium chlorite 10049-04-4, Chlorine dioxide  
 16940-66-2, Sodium borohydride 20667-12-3, Silver oxide  
 335133-08-9, Stabrex ST 70  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (cellulose fiber treated with; making carboxylated cellulose  
 fibers for papermaking)  
 REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE  
 FOR THIS RECORD. ALL CITATIONS AVAILABLE  
 IN THE RE FORMAT

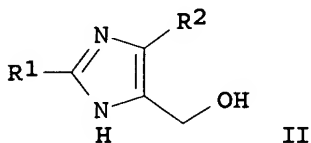
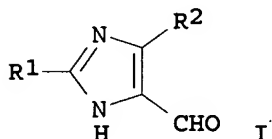
L46 ANSWER 19 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:727104 HCAPLUS

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

DOCUMENT NUMBER: 137:247693  
TITLE: Preparation of 4-formylimidazoles  
INVENTOR(S): Isokawa, Sorou; Enomoto, Katashi; Nagai, Naoshi  
PATENT ASSIGNEE(S): Mitsui Chemicals Inc., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2002275162	A2	20020925	JP 2001-73700	200103 15
PRIORITY APPLN. INFO.:			JP 2001-73700	200103 15
OTHER SOURCE(S):				
GI			CASREACT 137:247693; MARPAT 137:247693	

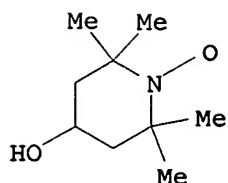


AB The compds. I [R1, R2 = H, C1-10 (un)substituted alkyl, aryl, halo] are prepd. by reaction of imidazoles II (R1, R2 = same as I) in the presence of 2,2,6,6-tetramethylpiperidine N-oxyls and cooxidizing agents in org. solvents or water solvents under basic condition.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl  
7681-52-9, Sodium hypochlorite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(prepn. of formylimidazoles)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07D233-64

ICS C07B061-00

CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine N-oxyl

7681-52-9, Sodium hypochlorite

RL: RGT (Reagent); RACT (Reactant or reagent)

(prepn. of formylimidazoles)

L46 ANSWER 20 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2002:575029 HCAPLUS

DOCUMENT NUMBER: 137:124781

TITLE: Recovery of nitroxyl radicals from oxidation reactions

INVENTOR(S): Thornton, Jeff; Besemer, Arie; Schraven, Bas

PATENT ASSIGNEE(S): SCA Hygiene Products AB, Swed.

SOURCE: PCT Int. Appl., 22 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

-----	----	-----	-----	
-------	------	-------	-------	--

-----				
-------	--	--	--	--

WO 2002059064	A1	20020801	WO 2001-SE2632	
---------------	----	----------	----------------	--

200111

29

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE,  
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,  
SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG

SE 2001000210 A 20020727 SE 2001-210 200101  
26

SE 523623 C2 20040504  
EP 1353888 A1 20031022 EP 2001-273493 200111  
29

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR  
US 2002151431 A1 20021017 US 2002-53646

PRIORITY APPLN. INFO.:

SE 2001-210 A 200101  
26

US 2001-264018P P 200101  
26

WO 2001-SE2632 W 200111  
29

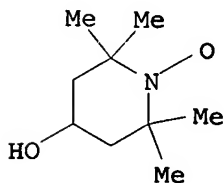
OTHER SOURCE(S): CASREACT 137:124781

AB Stable nitroxyl radicals, such as TEMPO and its derivs.; used as catalysts in oxidn. reactions are recovered from oxidn. reactions by hydrophobic interactions with polymers, such as XAD resins,  $\beta$ -cyclodextrin or silica gel. Thus, potato starch in water was treated with 4-acetamido-TEMPO and NaOCl at pH 8.5-9.5. The reaction mixt. was run through a column of silica gel, eluted with water. The 6-carboxy starch was eluted first, followed by the 4-acetamido-TEMPO which could be recycled without loss of activity.

IT 2226-96-2P, 4-Hydroxy TEMPO  
RL: PUR (Purification or recovery); RGT (Reagent); PREP  
(Preparation); RACT (Reactant or reagent)  
(recovery of nitroxyl radicals from oxidn. reactions)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C07B063-00

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

ICS C07D211-94; C07M003-00  
 CC 21-2 (General Organic Chemistry)  
 IT 2226-96-2P, 4-Hydroxy TEMPO 2564-83-2P, TEMPO  
 6599-87-7P, 1-Piperidinyloxy, 4-acetyloxy-2,2,6,6-tetramethyl-  
 14691-89-5P, 4-Acetamido TEMPO  
 RL: PUR (Purification or recovery); RGT (Reagent); PREP  
 (Preparation); RACT (Reactant or reagent)  
 (recovery of nitroxyl radicals from oxidn. reactions)  
 REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

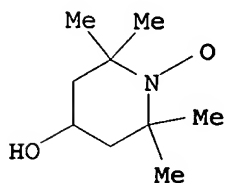
L46 ANSWER 21 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2002:10405 HCAPLUS  
 DOCUMENT NUMBER: 136:69591  
 TITLE: Chlorohydroxyacetone derivative and process for  
 producing optically active chloropropanediol  
 derivative from the same  
 INVENTOR(S): Taoka, Naoaki; Maeda, Hironobu; Okuro, Kazumi;  
 Toyota, Koichiro; Yasohara, Yoshihiko  
 PATENT ASSIGNEE(S): Kaneka Corporation, Japan  
 SOURCE: PCT Int. Appl., 41 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002000585	A1	20020103	WO 2001-JP5363	20010622
W: JP, US RW: BE, CH, DE, ES, FR, GB, IE, IT, NL				
EP 1298119	A1	20030402	EP 2001-941182	20010622
R: BE, CH, DE, ES, FR, GB, IT, LI, NL, IE				
US 2002160398	A1	20021031	US 2002-69105	20020226
US 6682916	B2	20040127		
PRIORITY APPLN. INFO.:			JP 2000-192245	A 20000627
			WO 2001-JP5363	W 20010622

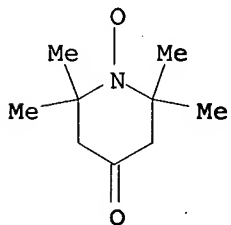
OTHER SOURCE(S): CASREACT 136:69591; MARPAT 136:69591  
 AB This document discloses a process for efficiently producing an  
 optically active chloropropanediol deriv., esp. (S)-1-benzyloxy-3-  
 chloro-2-propanol, which has a high optical purity and is useful as

an intermediate for medicines. The process comprises treating an inexpensive racemic chloropropanediol deriv. with a nitroxyl compd. and an oxidizing agent to convert it into a chlorohydroxyacetone deriv. and then stereospecifically reducing the carbonyl group of the chlorohydroxyacetone deriv. by the action of either a carbonyl-reducing enzyme having the ability to stereospecifically reduce the chlorohydroxyacetone deriv. or an optionally treated culture of a microorganism having the ability to yield the carbonyl-reducing enzyme. Thus, an optically active chloropropanediol deriv. is produced.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidiny-1-oxyl  
2896-70-0 7681-52-9, Sodium  
hypochlorite  
RL: RGT (Reagent); RACT (Reactant or reagent)  
(process for producing optically active chloropropanediol derivs.  
from chlorohydroxyacetone derivs.)  
RN 2226-96-2 HCAPLUS  
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



RN 2896-70-0 HCAPLUS  
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



RN 7681-52-9 HCAPLUS  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C049-175

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006



ICS C07C069-78; C07C045-29; C07C067-29; C07C309-73; C07C303-30;  
 C12P007-02; C12P007-02; C12R001-72; C12P007-02; C12R001-78;  
 C12P007-02; C12R001-84; C12P007-02; C12R001-88; C12P007-02;  
 C12R001-645; C12P007-02; C12R001-05; C12P007-02

CC 23-8 (Aliphatic Compounds)  
 Section cross-reference(s): 1, 10, 16

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidiny-1-oxyl  
 2564-83-2, TEMPO 2896-70-0 3225-26-1,  
 4-Benzoyloxy-2,2,6,6-tetramethylpiperidiny-1-oxyl 7681-52-9  
 , Sodium hypochlorite 14691-89-5,  
 4-Acetylamino-2,2,6,6-tetramethylpiperidiny-1-oxyl 95407-69-5  
 RL: RGT (Reagent); RACT (Reactant or reagent)  
 (process for producing optically active chloropropanediol derivs.  
 from chlorohydroxyacetone derivs.)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L46 ANSWER 22 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:631910 HCAPLUS

DOCUMENT NUMBER: 135:195510

TITLE: Preparation of carbamazepine

INVENTOR(S): Citterio, Attilio; Breviglieri, Gabriele; Bruno, Giacomo

PATENT ASSIGNEE(S): Farchemia S.r.l., Italy

SOURCE: Eur. Pat. Appl., 10 pp.  
 CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1127877	A2	20010829	EP 2001-103475	20010214
EP 1127877	A3	20021127		
EP 1127877	B1	20040602		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
IT 1317854	B1	20030715	IT 2000-MI345	20000225
AT 268325	E	20040615	AT 2001-103475	20010214
PT 1127877	T	20040831	PT 2001-103475	20010214
ES 2219447	T3	20041201	ES 2001-1103475	20010214
US 6384217	B1	20020507	US 2001-788048	200102

PRIORITY APPLN. INFO.:

IT 2000-MI345

A

17

200002

25

OTHER SOURCE(S): CASREACT 135:195510; MARPAT 135:195510

AB The title process comprises a method which does not employ 9,10-unsatd. precursors. Thus, 5-cyano-10,11-dihydro-5H-dibenz[b,f]azepine was brominated and the product hydroxylated to give 5-cyano-10 hydroxy-10,11-dihydro-5H-dibenz[b,f]azepine which was converted to the title compd.

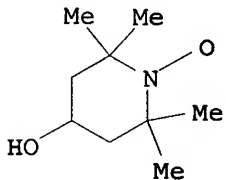
IT 2226-96-2

RL: CAT (Catalyst use); USES (Uses)

(prepn. of carbamazepine from 5-cyano-10,11-dihydro-5H-dibenz[b,f]azepine)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of carbamazepine from 5-cyano-10,11-dihydro-5H-dibenz[b,f]azepine)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07D223-28

CC 27-21 (Heterocyclic Compounds (One Hetero Atom))

IT 2226-96-2 2564-83-2, 2,2,6,6-Tetramethylpiperidine nitroxide

RL: CAT (Catalyst use); USES (Uses)

(prepn. of carbamazepine from 5-cyano-10,11-dihydro-5H-dibenz[b,f]azepine)

IT 107-71-1, tert-Butyl peracetate 110-22-5, Diacetyl peroxide

533-01-7, Copper(II) benzoate 614-45-9, tert-Butyl perbenzoate

4180-12-5, Copper acetate 7664-93-9, Sulfuric acid, reactions

7681-52-9, Sodium hypochlorite

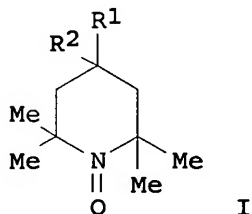
221908-80-1

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of carbamazepine from 5-cyano-10,11-dihydro-5H-dibenz[b,f]azepine)

L46 ANSWER 23 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2001:441242 HCAPLUS  
DOCUMENT NUMBER: 135:19380  
TITLE: Preparation of 3-methyl-2,4-nonanedione  
INVENTOR(S): Kato, Yasushi; Yamaguchi, Tetsuo; Yuasa, Yoshifumi; Suganuma, Toshikazu  
PATENT ASSIGNEE(S): Takasago Perfumery Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001163818	A2	20010619	JP 1999-352517	19991213
PRIORITY APPLN. INFO.:			JP 1999-352517	19991213

OTHER SOURCE(S): CASREACT 135:19380; MARPAT 135:19380  
GI



AB Title compd. is prepd. by reaction of n-hexylaldehyde with Me Et ketone in the presence of base catalysts in aq. solns. and reaction of 3-methyl-4-hydroxy-2-nonanone with hypohalogenites in the presence of nitroxyle radicals I (R1 = H, halo, OH, C1-4 alkyl, C1-4 alkoxy, etc.; R2 = H, C1-4 alkyl, etc.) and metal halides. Me Et ketone was reacted with n-hexylaldehyde in the presence of NaOH in H2O at 20-25° for 23 h to give 69% 3-methyl-4-hydroxy-2-nonanone, which was reacted with sodium hypochlorite in the presence of NaHCO3, KBr, 4-benzoyloxy-2,2,6,6-tetramethylpiperidine-1-oxyl in H2O-CH2Cl2 at 3-7° for 2 h to give 73.5% 3-methyl-2,4-nonanedione.

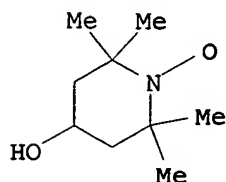
IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
2896-70-0, 4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl

RL: CAT (Catalyst use); USES (Uses)

(oxidn. catalyst; prepn. of methylnonanedione by aldol condensation of hexylaldehyde with ketone and oxidn.)

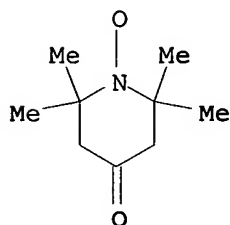
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of methylnonanedione by aldol condensation of hexylaldehyde with ketone and oxidn.)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C045-29

ICS B01J023-02; B01J023-04; B01J031-02; C07C045-30; C07C045-72; C07C049-12; C07B061-00

CC 23-15 (Aliphatic Compounds)

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidine-1-oxyl  
2564-83-2, 2,2,6,6-Tetramethylpiperidine-1-oxyl 2896-70-0,  
4-Oxo-2,2,6,6-tetramethylpiperidine-1-oxyl 3225-26-1,  
4-Benzoyloxy-2,2,6,6-tetramethylpiperidine-1-oxyl

RL: CAT (Catalyst use); USES (Uses)

(oxidn. catalyst; prepn. of methylnonanedione by aldol

condensation of hexylaldehyde with ketone and oxidn.)  
 IT 66-25-1, n-Hexylaldehyde 78-93-3, Methyl ethyl ketone, reactions  
 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of methylnonanedione by aldol condensation of  
 hexylaldehyde with ketone and oxidn.)

L46 ANSWER 24 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:360248 HCAPLUS

DOCUMENT NUMBER: 134:354735

TITLE: Metal-crosslinkable oxidized  
 cellulose-containing fibrous materials, their  
 manufacture and products

INVENTOR(S): Jaschinski, Thomas

PATENT ASSIGNEE(S): SCA Hygiene Products G.m.b.H., Germany

SOURCE: PCT Int. Appl., 75 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

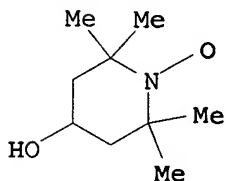
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001034903	A1	20010517	WO 2000-EP11047	20001108
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19953591	A1	20010517	DE 1999-19953591	19991108
US 6409881	B1	20020625	US 2000-706764	20001107
PRIORITY APPLN. INFO.:				19991108
DE 1999-19953591				A

AB Crosslinked cellulose-contg. fibrous material, where hydroxy groups are oxidized at the C(6) of glucose units of the cellulose into aldehyde and/or carboxy groups crosslinked with a metal-contg. crosslinking agent selected from transition metals of Group IVb (preferably Zr), Vb VIb, VIIb and VIII, Al and Zn, used in a paper or nonwoven (product), e.g. tissue (product) of high wet and dry strength. Thus, bleached hardwood sulfite pulp was treated for 60

min under acidic conditions with 4-hydroxy-TEMPO (1.00 g/50 g dry fibrous material) using 5% of 13% NaOCl as a primary oxidizing agent, and used to prep. test sheets (basis wt. 80 g/m<sup>2</sup>) having wt. 2.56 g, breaking strength 23.94 (dry) and 4.687 N/15 mm (wet), tear length 1980.1 (dry) and 387.7 m (wet), and rel. wet strength 19.6%. Upon crosslinking treatment with aq. 2% ammonium zirconium carbonate soln., the test sheet had breaking strength 31.64 (dry) and 8.502 N/15 mm (wet), tear length 2582.1 (dry) and 693.1 m (wet), and rel. wet strength 26.9%.

IT 2226-96-2, 4-Hydroxy-Tempo 7681-52-9,  
Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. and crosslinking of cellulose-contg. fibrous materials  
for paper products having high wet and dry strength)  
RN 2226-96-2 HCAPLUS  
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
NAME)



RN 7681-52-9 HCAPLUS  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM D21C009-00  
ICS C08B015-02; D21H011-20  
CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)  
ST sodium hypochlorite TEMPO oxidn cellulose;  
ammonium zirconium carbonate crosslinking oxidized cellulose  
IT 2226-96-2, 4-Hydroxy-Tempo 2564-83-2, Tempo  
7681-52-9, Sodium hypochlorite  
10028-15-6, Ozone, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. and crosslinking of cellulose-contg. fibrous materials  
for paper products having high wet and dry strength)  
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 25 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2001:360048 HCAPLUS

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

DOCUMENT NUMBER: 134:368508  
 TITLE: Selective oxidation of primary alcohol functions into carbaldehyde groups in monosaccharides and polysaccharides under acidic conditions  
 INVENTOR(S): Gunnars, Susanna  
 PATENT ASSIGNEE(S): SCA Hygiene Products Zeist B.V., Neth.  
 SOURCE: PCT Int. Appl., 14 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001034657	A1	20010517	WO 2000-NL812	20001108
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 2001017411	A5	20010606	AU 2001-17411	20001108
EP 1237933	A1	20020911	EP 2000-980111	20001108
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2003516939	T2	20030520	JP 2001-537368	20001108
US 6770755	B1	20040803	US 2002-129527	20020913
PRIORITY APPLN. INFO.:				EP 1999-203726 A 19991108 WO 2000-NL812 W 20001108

AB The oxidn. was carried out in the presence of a di-tertiary-alkyl nitroxyl such as 4-hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl and optional sodium hypochlorite in an aq. reaction medium at a pH < 7. The process exhibits a preference of primary

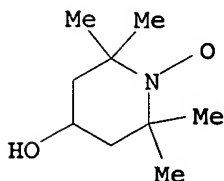
over secondary alc. functions and is particularly advantageous for oxidizing primary hydroxy groups in carbohydrates such as starch into carbaldehyde groups rather than carboxylic groups. The selectivities of primary over secondary alc. functions and of alc. to aldehyde over aldehyde to carboxylic acid can be effected by selecting specific di-tertiary-alkyl nitroxyl analogs and by carrying out the oxidn. at different conditions (temp., pH and rate of addn. of oxidizing agent). The oxidized products can be used as chelating agents for metals and the like and as absorbent materials.

IT 7681-52-9, **Sodium hypochlorite**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C08B031-18  
 ICS C08B015-04; C07H007-033  
 CC 44-6 (Industrial Carbohydrates)  
 Section cross-reference(s): 33  
 IT 7681-52-9, **Sodium hypochlorite**  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups in monosaccharides and polysaccharides)  
 IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
 2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl 6599-87-7,  
 4-Acetoxy-2,2,6,6-tetramethylpiperidin-1-oxyl 14691-89-5,  
 4-Acetamido-2,2,6,6-tetramethylpiperidin-1-oxyl  
 RL: RCT (Reactant); RACT (Reactant or reagent)



(oxidizing agent; Selective oxidn. of primary alc. functions into carbaldehyde groups with di-tertiary-alkyl nitroxyl and hypochlorite)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 26 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:360047 HCAPLUS

DOCUMENT NUMBER: 134:354734

TITLE: Oxidized polysaccharides and products made thereof

INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer, Arie Cornelis; Bragd, Petter

PATENT ASSIGNEE(S): SCA Hygiene Products G.m.b.H., Germany

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001034656	A1	20010517	WO 2000-EP11048	20001108
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19953589	A1	20010523	DE 1999-19953589	19991108
DE 19953589	B4	20050525		
BR 2000015245	A	20020723	BR 2000-15245	20001108
EP 1228099	A1	20020807	EP 2000-972899	20001108
EP 1228099	B1	20030924		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, IE, SI, LT, LV, FI, RO, MK, CY, AL				
JP 2003514077	T2	20030415	JP 2001-537367	20001108
AT 250633	E	20031015	AT 2000-972899	200011

US 6635755	B1	20031021	US 2000-707971	08
				200011
				08
TW 570930	B	20040111	TW 2000-89123611	200011
				08
ES 2208431	T3	20040616	ES 2000-972899	200011
				08
AU 777759	B2	20041028	AU 2001-11466	200011
				08
ZA 2002003058	A	20030717	ZA 2002-3058	200204
				17
US 2004010137	A1	20040115	US 2003-437117	200305
				14
US 6987181	B2	20060117		
PRIORITY APPLN. INFO.:			DE 1999-19953589	A
				199911
				08
			US 2000-707971	A3
				200011
				08
			WO 2000-EP11048	W
				200011
				08

AB The present invention relates to a polysaccharide having functional groups, wherein said groups are aldehyde groups formed at positions C2 and/or C3 as well as at position C6 of the anhydroglucose units of the polysaccharide chain. Preferably, the polysaccharide is a cellulosic fibrous material, the primary and secondary hydroxyl groups of which are at least partially oxidized to aldehyde groups by means of TEMPO oxidn. and periodate oxidn. The invention also relates to a paper or nonwoven comprising the above polysaccharide. According to the invention a relative wet strength of greater than 10% can be achieved.

IT 7681-52-9, Sodium hypochlorite  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (co-oxidant; oxidized polysaccharides and products made thereof)

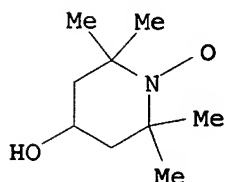
RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy-TEMPO  
RL: MOA (Modifier or additive use); USES (Uses)  
(oxidant; oxidized polysaccharides and products made thereof)  
RN 2226-96-2 HCAPLUS  
CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C08B015-02  
ICS C08B031-18; C08B033-08; C08B035-08  
CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)  
Section cross-reference(s): 40  
IT 7681-52-9, Sodium hypochlorite  
RL: MOA (Modifier or additive use); USES (Uses)  
(co-oxidant; oxidized polysaccharides and products made thereof)  
IT 2226-96-2, 4-Hydroxy-TEMPO 7790-28-5, Sodium periodate  
14691-89-5, 4-Acetamido-TEMPO  
RL: MOA (Modifier or additive use); USES (Uses)  
(oxidant; oxidized polysaccharides and products made thereof)  
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 27 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2001:330920 HCAPLUS  
DOCUMENT NUMBER: 135:122663  
TITLE: TEMPO-derivatives as catalysts in the oxidation  
of primary alcohol groups in carbohydrates  
AUTHOR(S): Bragd, Petter L.; Besemer, Arie C.; van Bekkum,  
Herman  
CORPORATE SOURCE: SCA Hygiene Products AB, Zeist, 3704 AJ, Neth.  
SOURCE: Journal of Molecular Catalysis A: Chemical  
(2001), 170(1-2), 35-42  
CODEN: JMCCF2; ISSN: 1381-1169  
PUBLISHER: Elsevier Science B.V.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 135:122663  
AB Primary hydroxyl groups in aq. starch, pullulan and Me  
 $\alpha$ -D-glucopyranoside were oxidized to the corresponding  
carboxylic acid functionalities by TEMPO-(4-X)-derivs. using  
sodium hypochlorite as the primary oxidant. All  
the combinations of substrates and nitroxyl radicals resulted in  
stoichiometric conversions, and the selectivity for oxidn. of  
primary hydroxyls was high. Some depolymn. occurred throughout the  
oxidn., esp. when 4-acetoxy and 4-mesyl-TEMPO were used. The pH  
window of the activity of the inexpensive 4-acetamido-TEMPO was

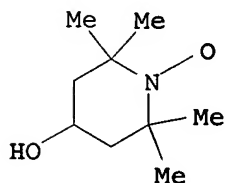
found to be substantially lower from that of the other tested TEMPO-derivs.; thus allowing milder reaction conditions. At pH 8, the rate of oxidn. was ca. two times higher when 4-acetamido-TEMPO was used compared to the other catalysts.

IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(TEMPO-derivs. as catalysts in the oxidn. of primary alc. groups in carbohydrates)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinylloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 33-1 (Carbohydrates)

Section cross-reference(s): 22

IT 97-30-3, Methyl  $\alpha$ -D-glucopyranoside 2226-96-2

9005-25-8D, Starch, potato, reactions 9057-02-7, Pullulan

RL: RCT (Reactant); RACT (Reactant or reagent)  
(TEMPO-derivs. as catalysts in the oxidn. of primary alc. groups in carbohydrates)

REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L46 ANSWER 28 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2001:300943 HCAPLUS

DOCUMENT NUMBER: 134:312682

TITLE: Method of making carboxylated cellulose fibers and products

INVENTOR(S): Jewell, Richard A.; Komen, Joseph Lincoln; Su, Bing; Weerawarna, S. Ananda; Li, Yong

PATENT ASSIGNEE(S): Weyerhaeuser Company, USA

SOURCE: PCT Int. Appl., 52 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 3

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001029309	A1	20010426	WO 2000-US27837	20001006

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH,

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
 LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ,  
 PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ,  
 UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ,  
 TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH,  
 CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE,  
 BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 6379494 B1 20020430 US 1999-418909 199910  
 15

CA 2384701 AA 20010426 CA 2000-2384701 200010  
 06

CA 2384701 C 20050329  
 EP 1238142 A1 20020911 EP 2000-970682 200010  
 06

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
 PT, IE, SI, LT, LV, FI, RO, MK, CY, AL  
 JP 2003512540 T2 20030402 JP 2001-532283 200010  
 06

PRIORITY APPLN. INFO.: US 1999-418909 A 199910  
 15

US 1999-272137 A2 199903  
 19

WO 2000-US27837 W 200010  
 06

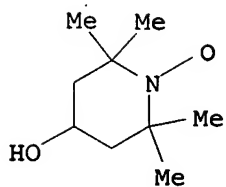
OTHER SOURCE(S): MARPAT 134:312682

AB A method of making highly carboxylated cellulose fibers whose fiber strength and d.p. is not significantly sacrificed comprises (1) oxidizing the cellulose fiber (kraft pulp) with a cyclic nitroxide free radical compd. as a primary oxidant and a hypohalite salt as a secondary oxidant under aq. alk. conditions; and (2) treating the oxidized cellulose against d.p. loss in aq. suspension with a stabilizing agent selected from the group consisting of reducing agent and tertiary oxidizing agent. The product is esp. useful as a papermaking fiber where it contributes strength and has a higher attraction for cationic additives, and it is also useful as an additive to recycled fiber to increase strength.

IT 2226-96-2, 4-Hydroxy-TEMPO 2896-70-0, 4-Oxo-TEMPO  
 RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)  
 (cellulose fiber treated with; method of making carboxylated  
 cellulose fibers and products for papermaking)

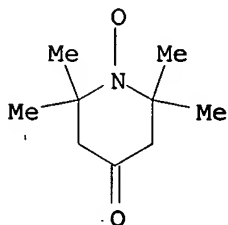
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
 NAME)



RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite

RL: NUU (Other use, unclassified); USES (Uses)

(cellulose fiber treated with; method of making carboxylated  
cellulose fibers and products for papermaking)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM D21C009-00

ICS D21H011-20; C08B015-04

CC 43-6 (Cellulose, Lignin, Paper, and Other Wood Products)

IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 2564-87-6

2896-70-0, 4-Oxo-TEMPO 3229-53-6 3264-93-5 14691-88-4,

4-Amino-TEMPO 14691-89-5 31645-22-4 95407-69-5,

4-Methoxy-TEMPO 98254-32-1 154186-17-1 184160-78-9

RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)

(cellulose fiber treated with; method of making carboxylated  
cellulose fibers and products for papermaking)

IT 7647-15-6, Sodium bromide, uses 7681-52-9, Sodium

hypochlorite 7722-84-1, Hydrogen peroxide, uses

7758-19-2, Sodium chlorite 10049-04-4, Chlorine dioxide

16940-66-2, Sodium borohydride 335133-08-9, Stabrex ST 70

RL: NUU (Other use, unclassified); USES (Uses)

(cellulose fiber treated with; method of making carboxylated  
cellulose fibers and products for papermaking)

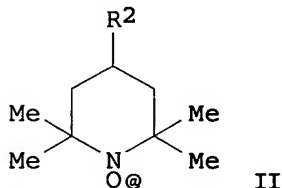
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR

THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 29 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2001:31441 HCAPLUS  
DOCUMENT NUMBER: 134:100641  
TITLE: Process for preparing benzyloxyacetaldehyde  
compounds  
INVENTOR(S): Wang, Weigi; Kawamoto, Hiroshi; Maeda, Chiharu;  
Matsuda, Michio; Imamiya, Yoshiyuki  
PATENT ASSIGNEE(S): Sumika Fine Chemicals Co., Ltd., Japan  
SOURCE: PCT Int. Appl., 20 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
WO 2001002333	A1	20010111	WO 2000-JP3791	20000612
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
JP 2001011007	A2	20010116	JP 1999-187165	19990701
PRIORITY APPLN. INFO.:			JP 1999-187165	A 19990701

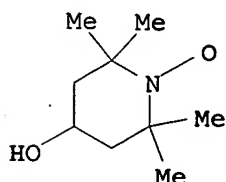
OTHER SOURCE(S): CASREACT 134:100641; MARPAT 134:100641  
GI



AB R1C6H4CH2OCH2CHO (I; R1 = H, MeO) were prepd. by oxidizing  
R1C6H4CH2OCH2CH2OH with NaOCl in the presence of a

1-piperidinoxyl compd. (II; R2 = H, OH, NHAc, methacryloyloxy). Thus, a mixt. of 18.2 g 4-MeOC6H4CH2OCH2CH2OH, 50 g EtOAc, 65 g 12% aq. NaOCl, 3 g NaHCO3, and 172 mg II (R2 = OH) was stirred vigorously at pH 8-10.5 to give a 90.5% yield of I (R1 = 4-MeO). I are useful as intermediates for pharmaceuticals specifically inhibiting proliferation of HIV.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 RL: CAT (Catalyst use); USES (Uses)  
 (oxidn. of (benzyloxy)ethanols)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C07C045-30  
 ICS C07C047-277; C07C041-01  
 CC 25-15 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethyl-1-piperidinyloxy  
 15051-46-4  
 RL: CAT (Catalyst use); USES (Uses)  
 (oxidn. of (benzyloxy)ethanols)  
 REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L46 ANSWER 30 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2000:805415 HCAPLUS  
 DOCUMENT NUMBER: 134:107110  
 TITLE: New Approach to Rapid Generation and Screening  
 of Diverse Catalytic Materials on Electrode  
 Surfaces  
 AUTHOR(S): Siu, Tung; Yekta, Shahla; Yudin, Andrei K.  
 CORPORATE SOURCE: Department of Chemistry, University of Toronto,  
 Toronto, ON, M5S 3H6, Can.  
 SOURCE: Journal of the American Chemical Society (2000),  
 122(48), 11787-11790  
 CODEN: JACSAT; ISSN: 0002-7863  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB This paper describes a general approach to rapid generation and screening of catalytic materials on electrode surfaces. The properties of the corresponding polymers, including catalytic performance, can be modulated by varying the monomer feed ratios, monomer concns., and applied polymn. potential. Thus, the generation of the polymeric TEMPO (2,2,6,6-tetramethylpiperidin-1-yloxy) catalysts was performed by electrochem. copolymn. of



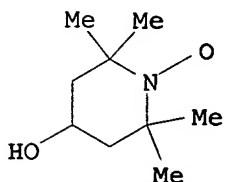
2,2'-bithiophene with the TEMPO catalyst precursors contg. pyrrole side chains. A library of catalyst films was obtained over a wide range of bithiophene/pyrrole ratios upon repeated scanning of the applied potential from +0.5 to +1.4 V (vs. Ag/AgCl). The resulting catalyst films were used in both chem. and electrochem. oxidn. of primary alcs. to aldehydes.

IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction with (pyrrolyl)propionic acid)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 23, 25, 27, 35, 36, 67

IT Oxidation

(of alcs. by NaOCl/NaBr in presence of  
((pyrrolyl)propionylamino)tetramethylpiperidinyloxy-bithiophene  
copolymer)

IT 104-54-1 106-21-8, 3,7-Dimethyl-1-octanol 111-87-5, 1-Octanol,  
reactions 112-30-1, 1-Decanol 112-53-8, 1-Dodecanol 1124-63-6,  
Cyclohexanepropanol

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. by NaOCl/NaBr using  
((pyrrolyl)propionylamino)tetramethylpiperidinyloxy-bithiophene  
copolymer catalyst)

IT 100-51-6, Benzyl alcohol, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. by NaOCl/NaBr using  
((pyrrolyl)propionylamino)tetramethylpiperidinyloxy-bithiophene  
copolymer catalyst and electrooxidn. using  
((pyrrolyl)propionyloxy)tetramethylpiperidinyloxy-bithiophene  
copolymer catalyst)

IT 104-55-2 112-31-2, Decanal 112-54-9, 1-Dodecanal 124-13-0,  
Octanal 4361-28-8, Cyclohexanepropanal 5988-91-0,  
3,7-Dimethyl-1-octanal

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. by oxidn. of alc. by NaOCl/NaBr using  
((pyrrolyl)propionylamino)tetramethylpiperidinyloxy-bithiophene  
copolymer catalyst)

IT 2226-96-2 14691-88-4, 4-Amino-2,2,6,6-  
tetramethylpiperidinyloxy

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction with (pyrrolyl)propionic acid)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE

## IN THE RE FORMAT

L46 ANSWER 31 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 2000:608782 HCAPLUS  
 DOCUMENT NUMBER: 133:209532  
 TITLE: Oxidized cellulose-containing fibrous materials,  
 preparation thereof and products therefrom  
 INVENTOR(S): Jaschinski, Thomas; Gunnars, Susanna; Besemer,  
 Arie Cornelis; Bragd, Petter; Jetten, Jan  
 Matthijs; Van den Dool, Ronald; Van  
 Hartingsveldt, Willem  
 PATENT ASSIGNEE(S): Sca Hygiene Products G.m.b.H., Germany; Sca  
 Hygiene Products Zeist B.V.  
 SOURCE: PCT Int. Appl., 75 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000050462	A1	20000831	WO 2000-EP1538	200002 24
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
DE 19953590	A1	20010517	DE 1999-19953590	199911 08
EP 1155040	A1	20011121	EP 2000-907622	200002 24
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
BR 2000008378	A	20020219	BR 2000-8378	200002 24
TR 200102472	T2	20020321	TR 2001-200102472	200002 24
JP 2002537503	T2	20021105	JP 2000-601040	200002 24
AU 768725	B2	20040108	AU 2000-29145	200002 24
AU 2000029145	A5	20000914		

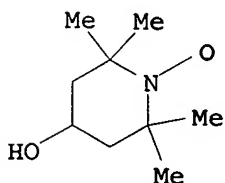
US 2002098317	A1	20020725	US 2001-931621	
				200108 16
US 6824645	B2	20041130		
PRIORITY APPLN. INFO.:			EP 1999-200537	A 199902 24
			DE 1999-19953590	A 199911 08
			WO 2000-EP1538	W 200002 24

AB A cellulose-contg. fibrous material is prepd. by oxidizing hydroxy groups at the C(6) of glucose units of cellulose into aldehyde and/or carboxy groups, and used to prep. paper or nonwoven products, esp. tissue products. The paper or nonwoven products display excellent strength properties. Thus, bleached hardwood sulfite pulp was treated for 60 min under acidic conditions with 4-hydroxy-TEMPO (1.00 g/50 g dry fibrous material) using 5% of 13% NaOCl as a primary oxidizing agent, and used to prep. test sheets (basis wt. 80 g/m<sup>2</sup>) having wt. 2.56 g, breaking strength 23.94 (dry) and 4.687 N/15 mm (wet), tear length 1980.1 (dry) and 387.7 m (wet), and rel. wet strength 19.6%, compared with 3.04, 18.48, 0.151, 1285.7, 10.5, and 0.8, resp., for a nonoxidized pulp.

IT 2226-96-2, 4-Hydroxy-TEMPO  
RL: PEP (Physical, engineering or chemical process); PROC (Process) (oxidized cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent) (oxidized cellulose-contg. fibrous materials, prepn. thereof and products therefrom)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C08B015-02  
ICS C08B015-04; D21H011-20  
CC 43-7 (Cellulose, Lignin, Paper, and Other Wood Products)  
ST cellulose oxidn aldehydocellulose carboxycellulose paper strength;  
**sodium hypochlorite** TEMPO oxidn cellulose;  
piperidinyloxy **sodium hypochlorite** oxidn  
cellulose  
IT 2226-96-2, 4-Hydroxy-TEMPO 2564-83-2, TEMPO 9003-99-0,  
Peroxidase 14691-88-4, 4-Amino-TEMPO 14691-89-5,  
4-Acetamido-TEMPO  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(oxidized cellulose-contg. fibrous materials, prepn. thereof and  
products therefrom)  
IT 7681-52-9, **Sodium hypochlorite**  
10028-15-6, Ozone, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidized cellulose-contg. fibrous materials, prepn. thereof and  
products therefrom)  
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR  
THIS RECORD. ALL CITATIONS AVAILABLE IN  
THE RE FORMAT

L46 ANSWER 32 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1999:194054 HCAPLUS  
DOCUMENT NUMBER: 130:224554  
TITLE: Resin containing adsorbed catalyst for  
electively oxidizing primary hydroxyl groups of  
organic compounds  
INVENTOR(S): Ochi, Kiyoshige; Takahashi, Hidenori; Tanaka,  
Hideki; Sugiyama, Hiroshi; Fujisaki, Isao; Ori,  
Kazutomo  
PATENT ASSIGNEE(S): Chugai Seiyaku Kabushiki Kaisha, Japan  
SOURCE: PCT Int. Appl., 27 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9912644	A1	19990318	WO 1998-JP3877	199808 31

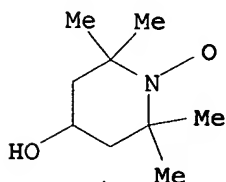
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ,  
DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, KE,  
KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,

MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,  
TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD,  
RU, TJ, TM  
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,  
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,  
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
CA 2302552 AA 19990318 CA 1998-2302552 199808  
31  
AU 9888879 A1 19990329 AU 1998-88879 199808  
31  
JP 11147043 A2 19990602 JP 1998-245452 199808  
31  
EP 1027931 A1 20000816 EP 1998-940635 199808  
31  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,  
PT, IE, FI  
TW 482696 B 20020411 TW 1998-87114578 199809  
02  
US 6335464 B1 20020101 US 2000-508176 200003  
08  
PRIORITY APPLN. INFO.: JP 1997-243015 A 199709  
08  
WO 1998-JP3877 W 199808  
31  
AB A process for selectively oxidizing primary hydroxyl groups of org.  
comps. is characterized by reacting an electrolytically oxidized  
halogen-contg. compd. with an org. compd. having a primary hydroxyl  
group in the presence of a resin contg. an adsorbed oxidized amine.  
Thus, TEMPO 150 mg was mixed with and absorbed ( $\geq 98.0$ ) by  
polyacrylate resin Diaion HP 2MG 75 mL, into which  
methyl- $\alpha$ -D-glucopyranoside 9.7 g was added, which was oxidized  
to methyl- $\alpha$ -D-glucopyranosiduronic acid with dropping  
sodium hypochlorite.  
IT 7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. catalyst; resin contg. adsorbed catalyst for electively  
oxidizing primary hydroxyl groups of org. compds.)  
RN 7681-52-9 HCAPLUS  
CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IT 2226-96-2, 4-Hydroxy TEMPO  
 RL: CAT (Catalyst use); USES (Uses)  
 (resin contg. adsorbed catalyst for electively oxidizing primary  
 hydroxyl groups of org. compds.)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX  
 NAME)



IC ICM B01J031-06  
 ICS C07H007-033; C08L101-00; C08K005-32  
 CC 44-6 (Industrial Carbohydrates)  
 IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidn. catalyst; resin contg. adsorbed catalyst for electively  
 oxidizing primary hydroxyl groups of org. compds.)  
 IT 2226-96-2, 4-Hydroxy TEMPO 2564-83-2, TEMPO 3225-26-1  
 9003-53-6, Polystyrene 9060-05-3, Amberlite XAD 2 14691-89-5,  
 4-Acetamido-TEMPO 98225-81-1, Diaion SP 207 99549-82-3, Diaion  
 HP 2MG  
 RL: CAT (Catalyst use); USES (Uses)  
 (resin contg. adsorbed catalyst for electively oxidizing primary  
 hydroxyl groups of org. compds.)  
 REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN  
 THE RE FORMAT

L46 ANSWER 33 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1999:65311 HCAPLUS  
 DOCUMENT NUMBER: 130:124823  
 TITLE: Preparation of hydroxymalonic acid by oxidation  
 of glycerin or glyceric acid  
 INVENTOR(S): Yokoi, Kenji; Nakagawa, Ryuichi  
 PATENT ASSIGNEE(S): Lion Corp., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11021266	A2	19990126	JP 1997-187606	19970627

PRIORITY APPLN. INFO.: JP 1997-187606 19970627

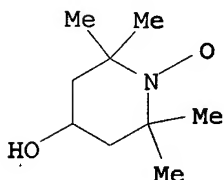
OTHER SOURCE(S): CASREACT 130:124823; MARPAT 130:124823

AB Hydroxymalonic acid (I) is prepd. by oxidn. of glycerin and/or glyceric acid with Cl-contg. oxidizing agents in the presence of nitroxide radicals and alkali metal halides and/or alk. earth halides. An aq. NaClO soln. was added dropwise to a mixt. of an aq. glycerin soln., 2,2,6,6-tetramethylpiperidin-1-oxyl, and an aq. NaBr soln. at 10° and pH 8-9 to give a product contg. 85% I, vs. 58% for a control using no NaBr.

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)

RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric acid using nitroxide radical and alkali or alk. earth halides)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07C059-245  
 ICS C07C051-275  
 CC 23-16 (Aliphatic Compounds)

IT 2226-96-2, 4-Hydroxy-2,2,6,6-tetramethylpiperidin-1-oxyl  
2564-83-2, 2,2,6,6-Tetramethylpiperidin-1-oxyl 7447-40-7,  
Potassium chloride, uses 7647-15-6, Sodium bromide, uses  
7758-02-3, Potassium bromide, uses 7782-50-5, Chlorine, uses  
7789-48-2, Magnesium bromide  
RL: CAT (Catalyst use); USES (Uses)  
(prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric  
acid using nitroxide radical and alkali or alk. earth halides)

IT 56-81-5, Glycerin, reactions 473-81-4, Glyceric acid  
7681-52-9, Sodium hypochlorite  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of hydroxymalonic acid by oxidn. of glycerin or glyceric  
acid using nitroxide radical and alkali or alk. earth halides)

L46 ANSWER 34 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1997:305663 HCAPLUS

DOCUMENT NUMBER: 127:17892

TITLE: Synthesis of  $\alpha$ - and  $\beta$ -D-  
glucopyranuronate 1-phosphate and  
 $\alpha$ -D-glucopyranuronate 1-fluoride:  
intermediates in the synthesis of D-glucuronic  
acid from starch

AUTHOR(S): Heeres, Andre; Van Doren, Henk A.; Gotlieb, Kees  
F.; Bleeker, Ido P.

CORPORATE SOURCE: Netherlands Institute for Carbohydrate Research  
TNO, Groningen, NL-9723 CC, Neth.

SOURCE: Carbohydrate Research (1997), 299(4), 221-227  
CODEN: CRBRAT; ISSN: 0008-6215

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The title uronates were prepd. by 2,2,6,6-tetramethyl-1-  
piperidinyloxy (TEMPO) catalyzed sodium  
hypochlorite oxidn. of  $\alpha$ - and  $\beta$ -D-glucopyranosyl  
phosphate ( $\alpha$ - /  $\beta$ -Glc-1-P) and  $\alpha$ -D-glucopyranosyl  
fluoride ( $\alpha$ -Glc-1-F). Quant. recovery of the TEMPO catalyst  
was achieved by azeotropic distn. of a small part of the reaction  
mixt. Also, a heterogeneous catalyst system was prepd. by  
immobilization of 4-oxo-tetramethyl-1-piperidinyloxy (OTEMPO) on  
amino-functionalized silica. The protected uronates were hydrolyzed  
to yield D-glucuronate. Since  $\alpha$ - and  $\beta$ -Glc-1-P and  
 $\alpha$ -Glc-1-F can be obtained from starch in one step,  
D-glucuronic acid is now available from starch in a convenient  
three-step sequence.

IT 2896-70-0D, OTEMPO, aminopropylsilica bound

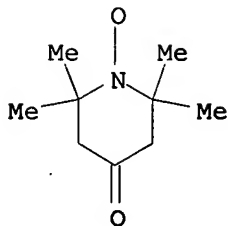
RL: CAT (Catalyst use); USES (Uses)

(prepn. of glucopyranuronate phosphate and fluoride intermediates  
in the prepn. of glucuronic acid from starch)

RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)





CC 33-8 (Carbohydrates)

IT : 2896-70-0D, OTEMPO, aminopropylsilica bound 9001-89-2,  
e.c. 3.1.3.26

RL: CAT (Catalyst use); USES (Uses)

(prepn. of glucopyranuronate phosphate and fluoride intermediates  
in the prepn. of glucuronic acid from starch)

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L46 ANSWER 35 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1996:27249 HCAPLUS

DOCUMENT NUMBER: 124:137991

TITLE: Singlet oxygen-trapping reaction as a method of  
102 detection: role of some reducing agents

AUTHOR(S): Dzwigaj, Stanislaw; Pezerat, Henri

CORPORATE SOURCE: Lab. Reactivite Surface, Univ. Pierre et Marie  
Curie, Paris, 75252, Fr.

SOURCE: Free Radical Research (1995), 23(2), 103-15

CODEN: FRALER; ISSN: 1071-5762

PUBLISHER: Harwood

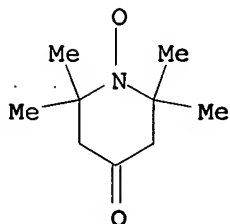
DOCUMENT TYPE: Journal

LANGUAGE: English

AB The prodn. of singlet oxygen by H<sub>2</sub>O<sub>2</sub> disproportionation and via the  
oxidn. of H<sub>2</sub>O<sub>2</sub> by NaOCl in a neutral medium was monitored  
by spin trapping with 2,2,6,6-tetramethyl-4-piperidone (TMPone).  
The singlet oxygen formed in both reactions oxidized TMPone to give  
nitroxide radicals. However, the prodn. of nitroxide radicals was  
relatively small considering the concns. of H<sub>2</sub>O<sub>2</sub> and NaOCl  
used in the reaction systems. Addn. of electron donating agents:  
ascorbate, Fe<sup>2+</sup> and desferrioxamine leads to an increase in the  
prodn. of nitroxide radicals. The authors assumed that a very slow  
step of the reaction sequence, the homolytic breaking of the O-O  
bond of N-hydroperoxide (formed as an intermediate product during  
the reaction of 102 with TMPone) could be responsible for the  
relatively small prodn. of nitroxide radicals. Electron donating  
agents added to the reaction system probably raise the rate of the  
hydroperoxide decompn. by allowing a more rapid heterolytic cleavage  
of the O-O bond leading to a greater prodn. of nitroxide radicals.  
The largest effect was obsd. in the presence of desferrioxamine.  
Its participation in this process is proved by the concomitant  
appearance of desferrioxamine nitroxide radicals. The results  
obtained demonstrate that the method proposed by several authors and  
tested in this study to detect singlet oxygen is not convenient for  
precise quant. studies. The reactivity of TMPone towards O<sub>2</sub>./H<sub>2</sub>O<sub>2</sub>.

and .OH was also investigated. Both O2.-/HO2. and .OH radicals formed in a phosphate buffer soln. (pH 7.4, 37°), resp. by a xanthine-oxidase/hypoxanthine system and via H2O2-UV irradiation, do not oxidize 2,2,6,6-tetramethyl-4-piperidone to nitroxide radicals.

IT 2896-70-0  
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
 (singlet oxygen-trapping reaction for 102 detection and role of some reducing agents)  
 RN 2896-70-0 HCAPLUS  
 CN 1-Piperidinyl-oxo, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (singlet oxygen-trapping reaction for 102 detection and role of some reducing agents)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

CC 4-1 (Toxicology)  
 IT 2896-70-0  
 RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)  
 (singlet oxygen-trapping reaction for 102 detection and role of some reducing agents)  
 IT 7681-52-9, Sodium hypochlorite  
 7722-84-1, Hydrogen peroxide, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (singlet oxygen-trapping reaction for 102 detection and role of some reducing agents)

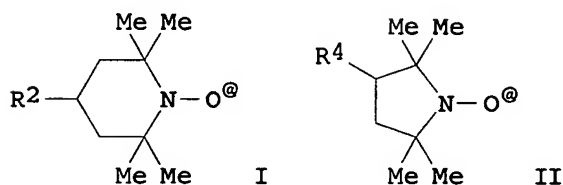
L46 ANSWER 36 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1995:175907 HCAPLUS  
 DOCUMENT NUMBER: 122:9868  
 TITLE: Preparation of ether bond-containing aldehydes  
 INVENTOR(S): Suzuki, Junji  
 PATENT ASSIGNEE(S): Nippon Soda Co, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

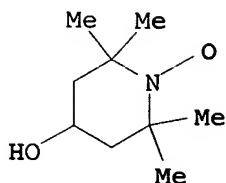
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06211827	A2	19940802	JP 1993-20847	19930114
PRIORITY APPLN. INFO.:			JP 1993-20847	19930114

OTHER SOURCE(S): CASREACT 122:9868; MARPAT 122:9868  
 GI



AB R1CHO (R1 = O-contg. 4- to 7-membered ring) are prepd. by oxidn. of R1CH2OH (R1 = same as above) with hypochlorites in a mixed solvent system comprising (A) H2O contg. bicarbonates and inorg. salts and (B) H2O-insol. org. solvents in the presence of tetramethylpiperidin-1-yloxy I (R2 = H, alkyl, OR3, cyano, alkoxy-carbonyl; R3 = H, alkyl, acyl) or tetramethylpyrrolidin-1-yloxy II (R4 = H, alkyl, OR5, cyano, alkoxy-carbonyl; R5 = H, alkyl, acyl). 4-Hydroxymethyltetrahydropyran was treated with I (R2 = MeO) in a mixt. of CH2CH2 and H2O contg. NaOCl, NaHCO3, and NaCl at room temp. 1 h to give 85.8% tetrahydropyran-4-carboxaldehyde, vs. 0.1%, when oxidized with NaBrO2 without NaCl.

IT 2226-96-2  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. and salting-out of O-contg. heterocyclecarbaldehydes by oxidn. of (hydroxymethyl)heterocycles with hypochlorites using N oxides as catalysts)  
 RN 2226-96-2 HCAPLUS  
 CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of  $\alpha,\beta$ -unsatd. ketones from  
 heterocyclecarbaldehydes and acetoacetate)  
 RN 7681-52-9 HCAPLUS  
 CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

● Na

IC ICM C07D309-06  
 ICS B01J031-02; C07D307-12  
 ICA C07B061-00  
 CC 27-13 (Heterocyclic Compounds (One Hetero Atom))  
 IT 2154-37-2 2154-70-3 2226-96-2 2564-83-2 3229-53-6  
 38078-71-6 95407-69-5  
 RL: CAT (Catalyst use); USES (Uses)  
 (prepn. and salting-out of O-contg. heterocyclecarbaldehydes by  
 oxidn. of (hydroxymethyl)heterocycles with hypochlorites using N  
 oxides as catalysts)  
 IT 623-58-5, Sodium acetoacetate 7681-52-9, Sodium  
 hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (prepn. of  $\alpha,\beta$ -unsatd. ketones from  
 heterocyclecarbaldehydes and acetoacetate)

L46 ANSWER 37 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1994:482711 HCAPLUS  
 DOCUMENT NUMBER: 121:82711  
 TITLE: 3-(4-methylphenyl)-2-(ar)alkylpropanals, their  
 preparation and fragrance application  
 INVENTOR(S): Kleemiss, Wolfgang; Kalz, Thomas  
 PATENT ASSIGNEE(S): Huels AG, Germany  
 SOURCE: Ger. Offen., 6 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
------------	------	------	-----------------	------

MEI HUANG EIC1700 REM4B28 571-272-3952

03/06/2006

DE 4236887

A1

19940505

DE 1992-4236887

199210

31

PRIORITY APPLN. INFO.:

DE 1992-4236887

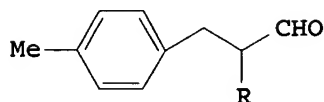
199210

31

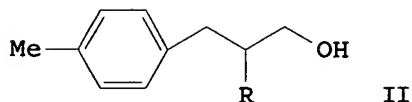
OTHER SOURCE(S):

MARPAT 121:82711

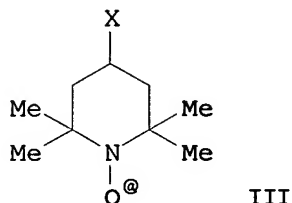
GI



I



II



III

AB The title compds. [I; R = (un)branched alkyl, (un)substituted C<sub>6</sub>-10 aryl, C<sub>7</sub>-10 arylaliph.] are prepd. in high yield by the oxidn. of phenylpropanols II with tetramethylpiperidine-N-oxyl derivs. III (X = H, OH) and org. solvents with NaOCl and NaHCO<sub>3</sub>.

IT 7681-52-9, Sodium hypochlorite

RL: RCT (Reactant); RACT (Reactant or reagent)  
(oxidn. of alkylpropanols in presence of sodium hydrogen carbonate and piperidine oxides)

RN 7681-52-9 HCAPLUS

CN Hypochlorous acid, sodium salt (8CI, 9CI) (CA INDEX NAME)

Cl-OH

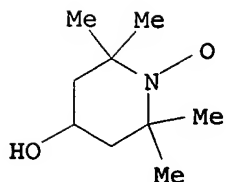
● Na

IT 2226-96-2

RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with alkylpropanals with sodium hypochlorite and sodium hydrogen carbonate)

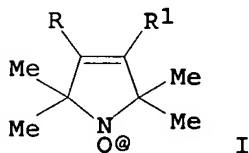
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



IC ICM C07C047-228  
 ICS C07C047-23; A61K007-46  
 ICA C07D211-94  
 CC 25-15 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 Section cross-reference(s): 62  
 IT 7681-52-9, Sodium hypochlorite  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (oxidn. of alkylpropanols in presence of sodium hydrogen  
 carbonate and piperidine oxides)  
 IT 2226-96-2 2564-83-2  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with alkylpropanals with sodium  
 hypochlorite and sodium hydrogen carbonate)

L46 ANSWER 38 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1981:442804 HCAPLUS  
 DOCUMENT NUMBER: 95:42804  
 TITLE: Unusual direction of the hypohalogenation of  
 4-oxo-2,2,6,6-tetramethylpiperidin-1-oxyl  
 AUTHOR(S): Chudinov, A. V.; Shole, V. D.; Rozantsev, E. G.  
 CORPORATE SOURCE: Inst. Khim. Fiz., Moscow, USSR  
 SOURCE: Izvestiya Akademii Nauk SSSR, Seriya  
 Khimicheskaya (1981), (2), 476-7  
 CODEN: IASKA6; ISSN: 0002-3353  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian-  
 OTHER SOURCE(S): CASREACT 95:42804  
 GI

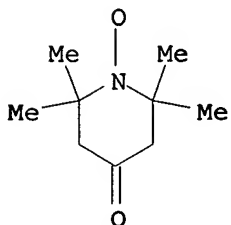


AB The title reaction with NaOBr in aq. MeOH gave pyrrolines I (R = Br,  
 R1 = Br, CO2H) in a 64:36 ratio; I (R = Br, R1 = CO2Me) was also  
 formed in 5% yield. With NaOCl the main product was 54% I  
 (R = Cl, R1 = H); 3.7% I (R = H, R1 = CO2H) was also formed.  
 IT 2896-70-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)

(hypohalogenation of, unusual direction of)

RN 2896-70-0 HCAPLUS

CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



CC 27-10 (Heterocyclic Compounds (One Hetero Atom))

IT 2896-70-0

RL: RCT (Reactant); RACT (Reactant or reagent)  
(hypohalogenation of, unusual direction of)

L46 ANSWER 39 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1973:57381 HCAPLUS

DOCUMENT NUMBER: 78:57381

TITLE: Quenching of singlet (1Ag) oxygen by  
2,2,6,6-tetramethylpiperidine derivatives

AUTHOR(S): Bellus, Daniel; Lind, Hanns; Wyatt, John F.

CORPORATE SOURCE: Cent. Res. Plast. Addit. Div., Ciba-Geigy A.-G.,  
Basel, Switz.SOURCE: Journal of the Chemical Society, Chemical  
Communications (1972), (21), 1199-200  
CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal

LANGUAGE: English

GI For diagram(s), see printed CA Issue.

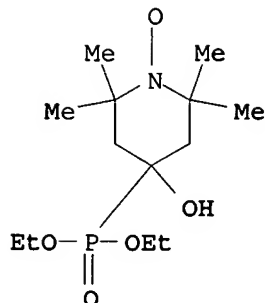
AB 2,2,6,6-Tetramethylpiperidine N-oxyls [I, R = O•, R1 = OH, R2 =  
H, P(O)(OEt)2] inhibited photooxidn. of Me2C:CHEt and  
9,10-dimethoxymethylantracene; I (R = R1 = H, R2 = H, OH) were  
ineffective and I (R = Me, R1 = H, R2 = H, OH) were demethylated.  
Singlet O was generated by sensitization with Rose Bengal, or from  
NaOCl-H2O2 for duplicate expts. using Me2C:CMe2 as  
substrate.

IT 36401-84-0

RL: PRP (Properties)  
(photooxygenation of 9,10-bis(methoxymethyl)anthracene and  
2-methyl-2-pentene in presence of)

RN 36401-84-0 HCAPLUS

CN 1-Piperidinyloxy, 4-(diethoxyphosphinyl)-4-hydroxy-2,2,6,6-  
tetramethyl- (9CI) (CA INDEX NAME)



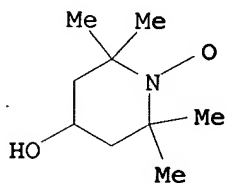
IT 2226-96-2 36401-84-0

RL: PRP (Properties)

(quenching of singlet oxygen by)

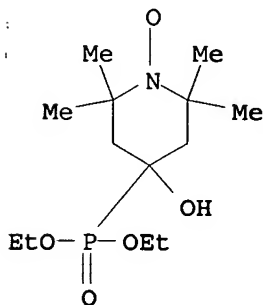
RN 2226-96-2 HCAPLUS

CN 1-Piperidinyloxy, 4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



RN 36401-84-0 HCAPLUS

CN 1-Piperidinyloxy, 4-(diethoxyphosphinyl)-4-hydroxy-2,2,6,6-tetramethyl- (9CI) (CA INDEX NAME)



CC 22-4 (Physical Organic Chemistry)

IT 768-66-1 2403-89-6 36401-84-0

RL: PRP (Properties)

(photooxygenation of 9,10-bis(methoxymethyl)anthracene and 2-methyl-2-pentene in presence of)

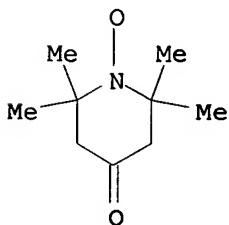
IT 2226-96-2 36401-84-0

RL: PRP (Properties)



(quenching of singlet oxygen by)

L46 ANSWER 40 OF 40 HCAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1972:487453 HCAPLUS  
DOCUMENT NUMBER: 77:87453  
TITLE: Stable free radicals. X. Photolysis of hindered N-chloroamines  
AUTHOR(S): Toda, Toshimasa; Mori, Eiko; Horiuchi, Hideo; Murayama, Keisuke  
CORPORATE SOURCE: Cent. Res. Lab., Sankyo Co., Ltd., Tokyo, Japan  
SOURCE: Bulletin of the Chemical Society of Japan (1972), 45(6), 1802-6  
CODEN: BCSJA8; ISSN: 0009-2673  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
GI For diagram(s), see printed CA Issue.  
AB Photolysis of the hindered N-chloroamines, 1-chloro-2,2,6,6-tetramethyl-4-oxopiperidine (Ia), 1-chloro-2,2,6,6-tetramethylpiperidine (Ib), and 1-chloro-2,2,5,5-tetramethyl-4-oxoimidazolidine (Ic), in benzene soln. were carried out in an ESR spectrometer cavity. The ESR spectra of the corresponding amino radicals IIa, IIb, and IIc were observed in evacuated solns. In solns. contg. oxygen, amino radicals IIb and IIc readily reacted with oxygen to give the corresponding stable nitroxide radicals from the shapes of spectra and g-values. Amino radical IIa did not react with oxygen. Although the amino radicals could not be isolated, their formation was confirmed by the isolation of a coupling product with a benzyl radical generated from dibenzylmercury.  
IT 2896-70-0  
RL: PRP (Properties)  
(ESR of)  
RN 2896-70-0 HCAPLUS  
CN 1-Piperidinyloxy, 2,2,6,6-tetramethyl-4-oxo- (9CI) (CA INDEX NAME)



CC 22-4 (Physical Organic Chemistry)  
IT 2564-83-2 2896-70-0 21485-42-7 38951-80-3  
RL: PRP (Properties)  
(ESR of)  
IT 768-66-1 826-36-8 16256-42-1  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(chlorination of, by sodium hypochlorite)

=>